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INTRODUCTORY.

THE nature of the part played by the lymphatics in the spread of certain diseases in the body, although of great importance, is not sufficiently appreciated, partly because of the conflicting views still prevalent as to the origin and anatomical arrangement of the lymphatics, but even more because of the unfortunate application of the term "lymph" to a variety of different fluids derived from the body. One view, elaborated by Recklinghausen and others, and still widely held, regards the lymphatics as taking origin in tissue spaces directly drained by lymph capillaries. Assuming this to be the mode of origin of the lymphatics, the fluids in the tissue spaces and the fluid in the lymph vessels are more or less identical, and to them the term lymph may be properly applied. This is a common conception of what is meant by lymph, and accounts for statements in physiological literature to the effect that lymph acts as a middle-man between the blood in the capillaries and the tissue cells. The other view, associated with the names of Teichmann, Ranvier, and others, looks upon the lymphatics as a closed system of vessels comparable with the blood-vessels. This opinion has gained ground in recent years and has been strongly supported by the work of MacCallum.[5] We are able to confirm some of the evidence adduced by MacCallum, and consider this view to be correct. The literature of the subject is lengthy and fully discussed in MacCallum's paper. The tissue spaces are not continuous with the lymphatics, any more than they are with the blood capillaries; indeed in many situations in the body there are no lymphatics, yet tissue spaces and tissue fluids exist in them. The term "lymph," on this view, should be restricted to the fluid in the lymphatics. It may or may not be the same as the tissue fluids, but until their identity has been established it is preferable and more exact to speak of tissue fluids and of lymph, regarding them as distinct from one another.

Obviously the mode of origin of the lymphatics must determine the mode of entrance of solid particles such as pigment or micro-organisms into these vessels. If the vessels originate as tissue spaces a free entrance is afforded to minute solid objects, but if the lymphatics are everywhere bounded by endothelial walls an entrance into them must be effected by the agency of living cells, which, acting as phagocytes, pass into the lymph by diapedesis. Rupture of the wall of a lymph capillary will not suffice to explain their entry, although such might occasionally happen. If an attempt is made to inject the lymphatics with coloured fluids, or fine suspensions, unless the point of the needle enters a lymph capillary the fluid merely accumulates locally; it certainly spreads in the tissue spaces, and in loose connective tissue may extend widely, just as air may do in an emphysema, but it is in the connective-tissue spaces and not in the lymphatics. The extent of spread of a subcutaneous hæmorrhage is well known, but the extravasated blood passes along the tissue spaces and is mixed with the tissue fluids; it is not in the lymphatics. The red blood corpuscles are absorbed by connective-tissue cells, and some of the material is carried into the lymphatics by the agency of phagocytic cells, to be arrested in the first lymph gland on their course.

A typical origin of lymph vessels is seen in the central lacteals of the villi, and similar origins are common in the connective tissues. Lymphatics also begin in aggregations of lymphoid tissue such as are distributed in the alimentary and respiratory passages, and in the large serous cavities. In all these situations the lymph vessels are lined by endothelium. In the tissues there is a free interchange of soluble material between blood in the blood capillaries, tissue fluids, and lymph in the lymph capillaries. If a soluble material is injected hypodermically it passes for the most part into the connective-tissue spaces, and is taken up by the blood in the capillaries. Some may enter lymph capillaries, but in the interchange of soluble material in the tissues the physical conditions are all in favour of its entry directly into the blood. On the other hand, if insoluble material is injected subcutaneously its destination is different. The solids, if in a fine state of suspension, are taken up from the tissue fluids by phagocytic cells, some of which enter the lymphatics and are carried to the lymph glands. The question naturally arises: Why should solids be carried into the lymph capillaries rather than into the blood-vessels? There is some evidence that both routes may be taken, if the solids are in a sufficiently fine state of division, but far more of the particles, especially the bulkier ones, undoubtedly pass into the lymphatics. These vessels are larger, and their endothelial lining may be more pervious, so that the phagocytic cells find it easier to enter them, especially when carrying bulky material in their cytoplasm. It is stated (Lister, quoted from Bayliss[1]) that one of the mycetozoa, Badhamia, can creep through wet cotton-wool; in so doing any solid particles which it may have previously ingested are filtered out of its cytoplasm. Possibly the apertures between the endothelial cells of the vascular capillaries are too small to permit the diapedesis of cells carrying large solid particles. Similar conditions may determine the entrance of fat into the lacteals rather than into the capillary blood-vessels. According to Sharpey Schafer,[4] the fat absorbed during digestion is carried from the epithelial cells of the villi into the central lacteals by amœboid cells. The lymphatics are concerned with the absorption of solids, and of material insoluble in water; the blood capillaries, on the other hand, are mainly associated with the absorption of material which is soluble in water.

Lymphatics are probably not so numerous as is often supposed. They are almost always confined to the true connective tissues. There are said to be no lymphatics in the voluntary muscles, though they occur in the connective-tissue sheaths; there are none in the central nervous system, and in an organ like the liver they are confined to the connective tissue of the capsule and of the portal spaces. The main trunks usually accompany the blood-vessels and lymph glands interrupt their courses in certain situations. The position of the larger lymph glands is obvious, but smaller glands exist and may be numerous. These have been well described by Stiles[3]; they are microscopic in size, and often infiltrated with adipose tissue, for which they may be readily mistaken. In the arrest of solid objects they play the same part as the larger glands, and Stiles has established their importance in the arrest of cancer cells.

EXPERIMENTAL.

The lymphatics and lymph glands have been examined by us in the guinea-pig, rabbit, and cat. The position of the blood-vessels of the glands was ascertained by injecting them with carmine-gelatin, and a study was made of the normal appearance of the lymph glands in different situations. The behaviour of the lymph glands to solid particles was investigated by the injection into a lymph trunk of fine carmine particles or of Indian ink. Injections of similar

* Being a record of a part of the work undertaken by Prof. P. T. Herring for the Medical Research Council.

material were also made subcutaneously, and the passage of the solids into the lymph glands examined in paraffin sections. Carmine is more suitable than Indian ink for an experimental research into the spread of foreign particles through the lymphatics, for reasons discussed later. Indian ink is more convenient when used simultaneously with the bacillus of tuberculosis, because it furnishes a better contrast to the bacillus in sections stained by the Ziehl-Neelsen method. Subcutaneous injections of cultures of the bacilli of bovine tuberculosis were made by one of us (F. G. M.) in guinea-pigs, and in some cases of the bacilli plus Indian ink. The animals injected with tubercle bacilli were killed at times varying from a few days to a month after injection. Guinea-pigs, which received a subcutaneous injection of sterile carmine particles in saline only, and in which no symptoms followed, were kept much longer. The lymph glands of human beings suffering from tuberculosis have been examined, as have also glands showing anthracosis.

RESULTS.

The Local Effects of Subcutaneous Injection.—An injection of sterilised carmine particles or of Indian ink in fine suspension into the subcutaneous tissue of the hind limb of a guinea-pig produces no untoward results. If the injection is not too bulky it forms a local swelling which rapidly disappears as the fluid is absorbed. A large injection spreads more widely by mechanically forcing a passage through the loose connective tissues. The local appearances vary with the amount of the injection and with the time that has elapsed between the injection and the subsequent examination. There is usually some accumulation of the pigment at the site of the injection, and this is enclosed by numerous connective-tissue cells and newly-formed fibrous tissue. The cells around its margin are densely packed, and their protoplasm full of pigment. If examined two months or more after injection the pigment is found to have spread widely in the subcutaneous tissues, where cells packed with fine particles are found over a wide area. The spread of the intracellular particles is not necessarily along the lines of distribution of the lymphatics, and there is in fact little pigment in these vessels. The pigment appears to creep as it were through the loose tissues, probably by the agency of amœboid phagocytic cells, for the pigment in the outlying parts is entirely intracellular. If carmine has been injected into the subcutaneous tissue of a hind limb connective-tissue cells are found to contain the pigment, not only throughout the greater part of the limb, but also over the lower part of the abdomen of the same side. If injected more deeply into the muscles of the limb the particles are found in the connective-tissue cells which surround the muscles, but never in the muscle fibres.

When tubercle bacilli plus Indian ink are injected in another animal the local appearances are very similar to those of an injection of Indian ink alone, but owing to the rapidity with which the guinea-pig develops general tuberculosis it is impossible to keep the animal long enough to observe the same extent of spread of the pigment. The reaction in the early stages is much the same as when the pigment alone is injected. Around the site of injection the cells contain Indian ink, tubercle bacilli, or both, but at a distance from the site the Indian ink is more plentiful than the tubercle bacilli. It looks as though the cells have the power of destroying tubercle bacilli to a considerable extent. If dead bacilli are injected they rapidly disappear. The cells are able to take up tubercle bacilli, alive or dead, and particles of Indian ink, in indiscriminate fashion; the bacilli largely disappear, but the Indian ink cannot be destroyed. In sections of the main lymph trunks draining the injected area both Indian ink and tubercle bacilli are found, but practically always in the cytoplasm of cells, rarely free. The cells are smaller than the average connective-tissue cells which take up the foreign material, but they are rather larger than the white corpuscle of the blood, though they resemble in many respects the large hyaline cell. The comparative scarcity of foreign particles in the lymph, and the fact that they are carried in the cytoplasm of such cells, make it extremely probable that the particles have been taken into the lymphatics by phagocytic cells. MacCallum[5] came to the same conclusion.

The Arrest of Solid Particles by the Lymph Glands.

The glands, which receive lymph vessels draining areas where Indian ink or carmine is present in the tissues, are slightly enlarged, and show the presence of the pigment to the naked eye if sufficient time has elapsed since the injection was made. The next glands or gland on the main lymph trunks nearer the heart show no such change even when two months have elapsed from the date of injection. Compared with the quantity of particles found near the site of injection the number in the local lymph glands is small. On microscopic examination the appearances vary according to the length of time absorption of the pigment has been going on. Particles of Indian ink or carmine arrive at the periphery of the gland in the interior of phagocytic cells, and pass into the subcapsular sinus or other sinuses, where they lie in the meshes of the fine net-work of reticulated fibres and endothelial cells characteristic of these channels. The pigment-carrying cells do not pass completely through the gland but find their way from the sinuses into the lymphoid nodules of the cortex or the lymphoid cords of the medulla. They may, and frequently do, penetrate even into the middle of the germ centres. The pigment, which has been carried into the lymphoid tissue of the gland, lies at first entirely in the cytoplasm of the cells responsible for its carriage, but later much of it appears to be discharged so that it comes to lie free in the same situations. These are always in the lymphoid tissue either of the cortex or of the medulla. In some glands the distribution of the pigment is mainly cortical, in others medullary, or it may be more or less evenly distributed between them. In guinea-pigs the pigment is found in both cortex and medulla, but in the early stages, when little of it has arrived in the gland, the first deposit usually takes place in a cortical lymphoid nodule. The passage of cells containing the injected pigment can be traced from the lymph sinuses into the lymphoid tissue. In rabbits the lymphoid cords of the medulla are more frequently concerned with the reception of the pigment, and may be densely packed with it, but some finds its way into the cortex. The endothelial lining of the lymph sinuses is obviously incomplete. The lymph gland, as shown by Mall,[6] is everywhere pervaded by a fine reticulum of fibres forming a delicate framework in which the cellular elements lie. A free passage exists between the lymphoid tissue and the lymph sinuses. When blood escapes from a ruptured capillary in the centre of a lymphoid nodule the red blood corpuscles find their way through the nodule into the sinuses without any sign of hindrance. After an injection of the blood-vessels of a gland with carmine-gelatin it not infrequently happens that a capillary in one or more of the cortical nodules ruptures, and the colouring matter streams away from the vessel through the lymphoid nodule into its outlying sinuses

The arrest of pigment-bearing cells by the lymphoid tissue is very complete. Few cells escape the gland and then only when very numerous. One must not be misled by the spread of pigment that so often occurs in the tissues outside the lymphatics. Some of it may be carried into areas drained by other lymphatics and so pass directly into other lymph glands. In a guinea-pig, which received an injection of carmine subcutaneously in a hind limb and was killed two months later, carmine was visible to the naked eye in the glands of the groin and external abdominal glands of the same side, and to a less extent in the corresponding internal iliac glands. No signs of any particles in the upper retroperitoneal glands were visible, but on careful examination of serial sections of one of these glands a few large cells were seen packed with carmine and lying in the interior of the cortical nodules of lymphoid tissue. It is doubtful if this pigment could have arrived at the gland directly without having

passed through at least one lymph gland before settling in this position. No particles were found in the mesenteric, mediastinal, cervical, or axillary glands of this animal, and none had been carried to the internal iliac or groin glands of the opposite side. More reliance can be placed on the spread of carmine than of Indian ink. The latter too closely resembles the carbon particles which may be derived from other sources. It is not uncommon to find carbon particles in the mediastinal glands, even in young animals reared in a small town. Similar particles occur in the lungs and are undoubtedly the results of inhalation. We had to discard Indian ink after a series of experiments which appeared to indicate that the pigment readily reached the mediastinal glands from a subcutaneous injection made in a hind limb. The black particles were ascertained to be of pulmonary origin, and we never obtained carmine in the mediastinal glands after such injection. The error has been made by previous workers, and evidence of this nature has been used by Calmette [2] to support his views on the intestinal origin of tuberculosis. Cobbett [3] has rightly pointed out the worthlessness of such evidence, and we are in full accord with him. The literature of the subject is fully discussed by Cobbett, and need not be given here. We would merely emphasise the fact that Indian ink is quite unsuitable as an experimental pigment for the reasons given. That carbon particles do spread in the lymphatic system is well known, but the process is a very slow one. We have found carbon in the retroperitoneal glands of the human subject, but the pigment was more abundant in the bronchial and mediastinal glands and the lungs appeared to have been its source.

When fine particles of carmine are injected into a lymph trunk the course of events is somewhat different. The particles arrive at the gland in a free condition. They are rapidly taken up by the branching cells which lie upon the fine network lining the lymph sinuses. These are endothelial cells, which, in appearance and in function, closely resemble the Kupffer's cells of the liver sinusoids. Their action as phagocytes is a very efficient one. As the particles accumulate in their cytoplasm the cells increase in size, draw in their processes, and detach themselves from the fine reticulum on which they lie. The cells may remain in the lymph sinuses for a time, but eventually they make their way into the lymphoid tissue of the cortex or medulla where they are surrounded by lymphocytes. The ultimate destination of the foreign particles, therefore, is the same whether they arrive in the gland in a free state or are carried to it by cells. The appearance of the cells which carry the pigment into the lymphoid tissue is the same in both instances, and points to a common endothelial origin. That phagocytosis can occur in lymph glands has long been recognised; it is one of the functions of the glands. The rôle of the phagocytic cells in the destruction of red blood corpuscles which have entered the lymph has been much debated. Some observers have looked upon them as cells concerned in the new formation of erythrocytes. Retterer [7] takes this view, and gives a good résumé of the literature. Flemming [4] noted the presence of such cells in the germ centres, and regarded them as enlarged cells derived from the reticular network of the lymph sinuses. The cells are undoubtedly concerned with the destruction of red blood corpuscles, and we have observed all stages of this process in glands affected with tuberculosis in which hæmorrhage has occurred at an early stage.

The lymph glands therefore provide an extremely efficient filter for the removal of foreign particles from the lymph, and though particles may pass through one gland when present in great numbers they are held up by the next gland in the series. The particles are carried by cells into the lymphoid tissue and are immured there. Carbon causes little irritation, but provokes some increase in the number of lymphocytes in the gland. Carmine appears to be rather more irritating, and the lymphocytosis is somewhat greater. There is some evidence that carmine may be gradually dissolved, for in some cells, particularly in the lymphoid nodules, the particles are diffuse and look as if they were being converted into a soluble carminate.

Why foreign particles are immediately carried into lymphoid tissue must remain a matter of conjecture. Their presence in the lymph sinuses would interfere to some extent with the lymph flow, whereas in the lymphoid tissue they are out of the way. There may be other reasons applicable more especially to foreign particles of an injurious nature such as micro-organisms. We have never seen any particles or organisms in the true lymphocytes, or any evidence that these cells act as phagocytes, but they may possibly exert some influence by secretion. Carbon particles are not amenable to any such chemical action and we have no evidence that lymphocytes do secrete. The most probable assumption is that the lymphocytes act mechanically by forming a barrier around the foreign material. In this barrier fibroblasts appear and fibrous tissue is rapidly formed if the contained substances set up sufficient irritation. In tuberculosis the barrier may under certain conditions become a calcified one.

Arrest of the Tubercle Bacillus by the Lymph Glands.

When a small dose of a culture of the bovine bacillus of tuberculosis is injected into the subcutaneous tissue of the hind limb of a guinea-pig a definite series of changes follows. The organism appears in the lymph glands of the groin within a week after injection, and the glands are enlarged. The external abdominal glands are also early affected, and there is a progressive spread through the abdominal to the mediastinal and bronchial glands, and thereafter to the cervical, axillary, and the inguinal glands of the opposite side. Tubercle bacilli have been found by us in the mediastinal and bronchial glands eight days after their subcutaneous injection into a hind limb. At the same time there may be a general blood infection as shown by involvement of the spleen. It is impossible to be certain whether the infection has reached the bronchial glands from the lungs, for these organs are implicated about the same time, and they in turn may have been infected from the blood side by an entry of the bacilli into the blood-vessels from the thoracic duct. It is also possible that the tubercle bacilli have been carried by phagocytic cells from the site of injection directly into local blood capillaries and a general infection thereby caused. In some animals the general infection has developed slowly, and there has been a progressive spread along the lymphatics. This is, indeed, the most constant feature of our experiments. The first glands affected are those which receive their lymphatics from the site of injection; a delay occurs in them, then the next glands on the lymph chain are affected, and so on. The main spread of tuberculosis from one part of the body to another usually takes place at first through the lymphatic system.

If Indian ink particles are mixed with tubercle bacilli in the injection, both appear in the local lymph glands at an early stage, but cells containing carbon particles are more numerous than those containing tubercle bacilli. The reason for this is not clear. The phagocytic cells may have a preference for the Indian ink, but this is not borne out by an examination of the tissues at the site of the injection, where tubercle bacilli and Indian ink particles appear to be taken up with equal avidity. A more probable explanation is that many of the tubercle bacilli are destroyed at some stage of the process. The phagocytic cells carry Indian ink, tubercle bacilli, or both together into the sinuses of the lymph gland, and enter the lymphoid nodules of the cortex or the lymphoid cords of the medulla. This passage of solids into the lymphoid tissue, even into the middle of the germ centres, is characteristic, and appears to be the routine method adopted by the glands in dealing with foreign bodies. It provides a site surrounded by lymphocytes where under favourable conditions the material can be retained and finally hemmed in by fibrous tissue. But in the guinea-pig

the bacilli of bovine tuberculosis prove too much for the protective power of the lymphocytes, although a great proliferation of these cells takes place. The whole process, usually considered to be a protective one, is not so in the guinea-pig when the bacillus is that of bovine tuberculosis. The phagocytic cell indeed spreads the infection, and is responsible for its carriage into the nearest lymph gland, which then becomes a fresh focus for the spread of the disease. Even in the guinea-pig there is some attempt at the isolation of the bacilli in the lymph gland by the rapid appearance of fibroblasts around the tubercles. In an animal less susceptible than the guinea-pig to the tubercle bacillus some protection is probably afforded, but the organism appears to be only mechanically immured and not necessarily destroyed. It remains therefore a potential source of infection, and may light up the disease afresh if for any reason the mechanical barrier is subsequently impaired.

The history of the entry of the tubercle bacillus into the lymphatics, and of its arrest in the first lymph gland upon the course of these vessels, is identical with that of the foreign solids already described. The tubercle bacilli, like the Indian ink or carmine, are liberated in the interior of the cortical nodules or medullary cords of the first lymph gland, and at an early stage cells containing the tubercle bacilli can be found in the lymph sinuses of the gland and in various positions in the lymphoid tissue. When the tubercle bacillus is the invading agent a greater reaction takes place in the gland than happens if the foreign matter is Indian ink or carmine. A rapid proliferation of lymphocytes occurs in the gland, the germ centres lose their typical appearance, and the lymphoid tissue is greatly increased in amount. The lymph sinuses, too, contain a much greater number of lymphocytes than is normally the case.

Hæmorrhage in the Lymph Gland.

Hæmorrhage is not infrequent at an early stage because the first lesions are usually in the cortical nodules in close proximity to the blood capillaries. The appearance at first sight suggests that the gland has been infected from the blood-vessels, but in the non-tuberculous gland the carmine-holding cells take up the same positions, and it is clear that they can have come in by the lymphatics only. There is no trace of the pigment at this stage in the Kupffer's cells of the liver or in other situations where free pigment is removed from the blood. When a capillary gives way the blood corpuscles escape into the lymph sinuses where they are rapidly ingested by the endothelial cells. The red blood corpuscles, if numerous, may often be seen adhering by their margins to a centrally-placed phagocyte in rosette-like formation. In other places the process is more advanced and the phagocyte may contain whole or broken-down red cells, or masses of yellow pigment. As has been mentioned already, the phagocytosis of red blood corpuscles may take place in a normal gland, and large cells containing pigment, probably a derivative of hæmoglobin, are sometimes found in the germ centres. The presence of such cells was noted by Flemming, and we are of his opinion that they are frequently endothelial cells from the lymph sinuses which have ingested red blood corpuscles and carried the pigment into the lymphoid nodules, but they may also be cells which have entered the lymphatics from the connective tissues.

Effect of the Toxins on the Lymph Glands.

In the guinea-pig the bacillus of bovine tuberculosis is progressive in its action. The bacillus is surrounded by lymphoid tissue, but its toxins lead to a rapid change in the cells immediately around it. These take on the typical epithelioid character of tuberculosis, and the bacilli rapidly multiply and appear in large numbers in the altered tissues. Giant cell formation is not a prominent feature in the guinea-pig, although such cells do appear. The tuberculous nodule increases in size, coalesces with others, and the gland is rapidly disorganised. The lymph sinuses are filled with lymphocytes and narrowed by the increase of lymphoid tissue in the gland. Here and there fibroblasts appear, and in places there may be considerable formation of fibrous tissue and thickening of the capsule. Tubercle bacilli are carried from the gland in increasing numbers, some by cells, others apparently free in the lymph stream. The next glands on the chain are soon involved and undergo similar changes. One of the most striking features of the spread of tuberculosis from gland to gland on the lymphatic chain in the guinea-pig is the proliferation of lymphoid tissue and the enlargement of the glands which take place before the tubercle bacillus can be histologically demonstrated in them. In many of these glands the bacilli are probably present in small numbers, for it is known that such glands, if used to inoculate another guinea-pig, frequently produce tuberculosis, which they would not do if they contained no tubercle bacilli. The bacilli are difficult to find before epithelioid change has taken place, and in the early stages very careful search has to be made to find bacilli in the cells which carry them to the gland. But when one gland in the lymph chain is affected, and before there is any sign of a general tuberculosis, the next glands in the lymph chain show the typical lymphocytosis. We have frequently examined such glands for the organism, using both the Ziehl-Neelsen and Much's methods of staining, without being able to find any. We believe that the lymphocytosis is due to the toxins of the bacilli, or to toxins resulting from the action of the bacilli on the tissues, and that this material precedes the organism in the lymph stream, thereby provoking the reaction. It occurs at first only in those glands which are on the lymph stream coming from the infected area. Infection of the right hind limb reveals itself first in the inguinal glands of that side, then the internal iliac glands of the same side, the retroperitoneal, the mediastinal, and the cervical glands, almost immediately show lymphocytosis. There is no such change in the mesenteric, in the inguinal glands of the opposite side, or in the axillary. These in time become involved, but the peripheral lymphoid structures such as the Peyer's patches of the small intestines are not affected until very late. The effect of injection of dead tubercle bacilli is said to be similar. (For literature see Muir and Ritchie's Bacteriology, 1918, p. 287.) In our experience the injection of dead tubercle bacilli does set up some lymphocytosis, but to nothing like the same extent. This is to be expected, for when an active focus is present the liberation of toxin must be a continuous one and more likely to produce changes than a single injection.

The lymphocytosis may be a protective phenomenon, but, if so, it is difficult to see how it can be other than mechanical. The gland does not acquire any greater resistance to the tubercle bacillus, and falls a ready prey to it. Possibly the lymphocytosis, by filling the lymph sinuses with lymphocytes, renders the gland more impervious for the time being to the passage of the organism. The almost simultaneous occurrence of lymphocytosis in the abdominal, the mediastinal, the bronchial, and the cervical glands, points to a direct connexion between these glands. Sims Woodhead [19] insisted upon such a relationship in the human subject, and many other observers have since done so. References to the literature of the subject are given by Cobbett, and its clinical importance is fully discussed by him. The mediastinal and bronchial glands are so near the termination of the thoracic duct that one cannot exclude the possibility of changes in them being secondary to infection of the lungs through the blood. Bearing this in mind, we still think that the mediastinal glands do in many cases receive infection directly from the lymph coming from the abdomen, and that the cervical glands may be involved in the same way.

Support of Cohnheim's Law.

Our results strongly support the view that the lymph glands which receive their lymphatics from the site of entry of the tubercle bacillus must arrest

some at least of these bacilli. In doing so certain pathological changes are produced in the glands of a characteristic kind. In other words the tubercle bacillus on entering the body impresses its signature upon the lymph gland, the afferent lymphatics of which drain the site of its entry. This is often referred to in the literature of tuberculosis as Cohnheim's law. Calmette [2] questions the validity of this law, and it is a matter of considerable importance in the determination of the mode and site of entry of the organism into the body. Calmette asserts that tuberculosis is mainly of intestinal origin, and that the bacillus is carried from the intestine into the lymphatics by phagocytic cells, or gains a direct entry into the lacteals during the absorption of fat. So far as our observations have gone, we can find no histological evidence of the entry of solid particles from the intestine into the lacteals during the absorption of fat. Our opinion is that when the tubercle bacillus does gain entry to the body from the intestine it must be arrested in the mesenteric glands, and must thereby reveal its place of entry by the production of pathological changes in these glands. We are in full accord with the views expressed by Cobbett upon this question. It is true that our experiments are not natural infections, and that the dosage of bacilli has been greater than can well happen in a natural infection. But our observations all go to prove that the lymph gland is a very efficient filter on the lymph stream, and it only fails when overtaxed or disorganised.

No Evidence of New Formation of Lymph Glands in Tuberculosis.

A point of interest is the possible occurrence of new lymph glands in the course of a tuberculous infection. We have not met with any such new formation, but the minute glands described by Stiles,[9] consisting merely of a small aggregation of lymphoid tissue and a sinus, more or less infiltrated by adipose tissue, enlarge and become evident. Many of the so-called glands met with in tuberculous conditions are not really glands at all, but masses of tuberculous tissue, which, in its histological features, bears a superficial resemblance to lymph glands. The typical tubercle formation is lymphoid in character, and may occur in any part of the body. The liver is full of such masses in guinea-pigs suffering from general tuberculosis, and they may appear in any situation, even where no lymphatics exist. They have not the structure of lymph glands, being devoid of lymph sinuses and endothelium. The tuberculous lymph gland itself soon loses the typical structure of a normal gland, and becomes a mass of tuberculous tissue, though portions of the gland may retain open lymph sinuses even at an advanced stage of the disease.

SUMMARY.

The lymphatics form a closed system of vessels lined by endothelium, and the term lymph should be restricted to the fluid contained in them. The tissue spaces are not directly continuous with the lymph capillaries, and the tissue fluids are not necessarily the same as lymph. Lymphatics are associated with the connective tissues, and are much more limited in their distribution in the body than blood-vessels are. The lymphatics are especially concerned with the absorption and carriage of solid particles and of material insoluble in water. Soluble material enters the blood capillaries directly. Fine solid particles, such as Indian ink or carmine, when injected into the loose connective tissues, may spread widely through the tissue spaces. The spread is not along the lymphatics, and is brought about partly by mechanical means, the influence of gravity, and the contraction of muscles, but more especially by the agency of amœboid phagocytic cells. Many of the solid particles are eventually carried into the lymphatics in the cytoplasm of cells which pass through the walls of the lymphatics by diapedesis.

The phagocytic cells are arrested in the first lymph gland on the lymph stream. The cells carrying solid particles pass from the lymph sinuses of the gland into the lymphoid tissue of the cortex and medulla of the gland, and eventually discharge their burden among the lymphocytes in these situations. Solid particles, and even red blood corpuscles, arriving at the gland in a free state in the lymph stream are dealt with by the endothelial cells of the reticulum of the lymph sinuses. These cells, analogous to the Kupffer's cells of the liver sinusoids, ingest the material, detach themselves, and carry it into the lymphoid tissue of the gland in exactly the same way.

The lymph gland is an extremely efficient filter, and only allows solid particles to pass through it when these arrive in too great numbers at a time, or when the gland has become disorganised. The lymphocytes of the lymphoid tissue act as a mechanical barrier against the escape of the particles, and eventually the barrier is made more complete by the appearance in it of fibroblasts and the formation of fibrous tissue. The foreign material is firmly enclosed, while the lymph sinuses are left open for the free passage of lymph.

The history of the tubercle bacillus in its early stages in the body is identical with that of solid particles such as Indian ink or carmine. A normal physiological process is made use of for the absorption and arrest of the bacillus. The bacillus is carried into the lymphatics by phagocytic cells, and is deposited in the lymphoid tissue of the first lymph gland arrived at. Some of the bacilli appear to be destroyed in the process, others retain their vitality, multiply in the lymphoid tissue, and give rise to a tuberculous focus in the lymph gland. The toxins produced by the action of the bacilli in a lymph gland mix with the lymph stream and set up an intense lymphocytosis in the other glands through which the lymph passes. The toxin precedes the bacilli and renders the glands less pervious to them by narrowing the lymph sinuses and filling them with lymphocytes. In the guinea-pig the action of the bovine bacillus of tuberculosis is a progressive one, and the disease rapidly spreads from gland to gland along the lymph stream. The physiological mechanism, generally considered to be protective, ceases to be so, and actually furthers the spread of the disease, when the organism is the bacillus of bovine tuberculosis and the animal the guinea-pig. What protection is afforded appears to be merely a mechanical one, and the gland in which the organisms are successfully immured by fibrous tissue, when this does occur, may remain a source of further infection if for any reason the protective barrier is broken down.

Our observations support the validity of the doctrine spoken of as Cohnheim's law, which states that the tubercle bacillus reveals the site of its entry into the body by setting up characteristic changes in the lymph glands which receive lymphatics from the area in which it enters. There is no evidence of a new formation of lymph glands in tuberculous conditions. Microscopic glands exist and become enlarged, but much of the tissue associated with tuberculous glands is merely tuberculous tissue which bears a superficial resemblance to lymph glands in whatever situation in the body it occurs.

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THE VALUE OF PULSE CHARTS IN ACUTE CARDITIS IN CHILDHOOD.*

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THE seriousness of acute rheumatism and of its consequences is not yet adequately realised. It is undoubtedly one of the great killing diseases—not so much directly, though the immediate mortality of cases with carditis is very considerable, but indirectly through the permanent damage so often done to the heart. Apart from its effect upon the death-rate, acute rheumatism is also the cause of an immense amount of disability; if it were abolished at least 50 beds in the London Hospital[1] would immediately be set free for other purposes.

Acute Rheumatism a Working-Class Disease.

Acute rheumatism is essentially a working-class disease; I could count upon my fingers the cases I have seen in consultation in 20 years, whereas my wards both at the London Hospital and Great Ormond-street are always full of it. This special incidence of the disease has been pointed out before, but I can offer no explanation of it. In common, I suppose, with most of the profession, I now regard acute rheumatism as an undoubtedly infective disease, due to infection with one or more forms of micro-organism. But although infective it is certainly not *infectious*, and it is difficult to believe that overcrowding or defective nutrition can act as predisposing conditions. Inadequate clothing or sitting in school after getting wet may more probably have something to do with it, but even this explanation does not seem adequate. It has been suggested that the greater incidence amongst the working classes is more apparent than real, and due to the fact that the earliest signs of the disease are more promptly recognised in well-to-do families, with the result that it is nipped in the bud and does not go on to the stage of serious manifestation; there may be something in this explanation, but again I am doubtful whether it covers all the ground. The fact remains that those who practise in industrial communities see most of the disease; those who labour at the other end of the social scale rarely meet it in a severe form.

It is not my intention in this lecture to give a general description of acute rheumatism in childhood. I propose only to deal with its most serious manifestation, acute carditis, to which all the menacing character of the disease is due. The term "carditis" was introduced by the late Dr. Sturges in his Lumleian lectures in 1894 as a convenient name to cover all the different ways in which acute rheumatism may affect the heart; it is made up of endocarditis, myocarditis, and pericarditis in varying degree. Endocarditis may, and often does, occur alone; pericarditis is usually—according to some observers always—accompanied by endocarditis, whilst myocarditis is probably never met with except in association with inflammation of the endocardium or pericardium. In all severe cases of carditis all three structures are to some degree involved. We have now to consider the manifestations of each of these components of carditis separately.

Endocarditis.

Endocarditis is the commonest and simplest manifestation of a rheumatic affection of the heart. Pathologically it consists, as is well known, of an inflammation of the valves, generally the mitral, with the development of "vegetations" on their surface a short way from the margins. The clinical recognition of such inflammation is not easy; indeed, it is perhaps impossible to detect endocarditis at its very outset. The indications given by different writers are very various, but on the whole the signs to look for are an increased rate with tumultuous action of the heart, and reduplication of the second sound at the apex with a blurring of the first sound going on to a definite systolic murmur conducted outwards. It has been denied by some,[2] however, that an early stage of endocarditis is capable of producing a systolic murmur, seeing that the small vegetations cannot appreciably interfere with the mechanical action of the valves; such writers attribute the incompetence of the valve, indicated by the murmur, to a myocarditis affecting the tone of the muscle sphincter which surrounds the mitral orifice. The point is perhaps rather academic, inasmuch as a myocarditis in this situation is pretty sure to be accompanied by some endocarditis. If the heart has already been damaged by a previous attack of rheumatism the recognition of fresh endocarditis is even more difficult. Here, I think, a study of the pulse-rate is of great help. If a chart be made of the pulse-rate it will be found that if there is no fresh endocarditis the pulse and the temperature charts remain roughly parallel, and fall together under the influence of salicylates. If, on the other hand, fresh endocarditis has supervened the pulse chart will remain high after the temperature has reached normal. I believe this to be true in all except the mildest and most insidious cases of endocarditis.

Myocarditis.

Sturges, in the lectures already referred to, drew special attention to the affection of the myocardium in carditis which up till that time had been overlooked. It has since been the subject of study in this country by my colleague, Dr. F. J. Poynton, and by Dr. Carey Coombs.[3] These investigators have demonstrated the presence in the myocardium from cases of acute carditis of inflammatory foci of characteristic histological appearance comparable in many respects to rheumatic nodules. Their observations leave no room for doubt that an actual inflammation of the myocardium occurs. Apart from inflammation, however, the toxic element is of equal and perhaps greater importance in the affection of the muscle of the heart in carditis. It would seem that the organism of acute rheumatism produces a toxin which affects the heart in much the same way as the diphtheria toxin does; some writers[4] regard this poisoning of the muscle as even more important and more disabling than its inflammation. The term myocarditis must, then, be taken to include the results not only of inflammation but of toxic action upon the heart muscle; which of these factors predominates in any given case it is impossible to say at the bedside.

The physical signs of myocarditis are as indeterminate as those of endocarditis; as we have seen, some would attribute an apical systolic murmur occurring in carditis to involvement of the muscle rather than of the mitral valve. Apart from this it seems reasonable to suppose that the greater the enlargement of the heart and the increase in its rate the more is the myocardium involved. The results of percussion, therefore, or determination of position of the apex beat along with a study of the pulse chart, must be our chief guides in diagnosis.

Pericarditis.

Pericarditis is the most dramatic manifestation of carditis, and usually appears later in the case than endocarditis. As has already been pointed out, it probably never occurs alone. The chief physical sign of pericarditis is, of course, the well-known

* A lecture delivered before the Bradford Medico-Chirurgical Society on Feb. 8th, 1922.

[1] This is the average number of beds permanently occupied by cases of acute rheumatism, chorea, and valvular heart disease of rheumatic origin.

[2] Gossage, A. M.: THE LANCET, 1909, ii., 523.

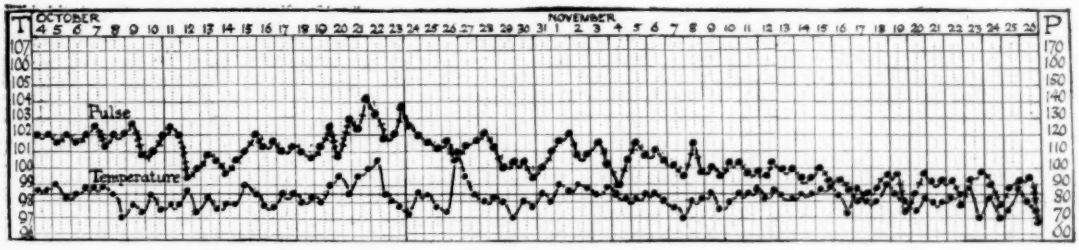
[3] Quart. Jour. of Med., 1922, xv., 114.

[4] Gossage, A. M.: Loc. cit.

to-and-fro rub heard at some point over the præcordium. This physical sign is very evanescent and elusive, and may easily be missed. Rapid enlargement of the area of heart dullness usually accompanies pericarditis, but is not mainly due—as is often supposed—to effusion into the sac, but to hypertrophy and dilatation of the heart. It is probable, as has been mentioned already, that it is really more the result of a co-existing myocarditis than of the pericarditis itself. An interesting phenomenon met with in many, but not all, cases of rheumatic pericarditis is Bamberger's sign, consisting of an area of dullness about the size of a crown-piece appearing first near the angle of the left scapula and gradually extending over the whole left lower lobe. The breath sounds over it are intensely tubular. It is commonly stated that these signs indicate a consolidation of the lower lobe of the left lung, the result of pressure upon it by the dilated heart. This explanation seems unlikely; if it were true one would expect to meet with the sign in many cases of heart disease—for example, in the enormously hypertrophied heart of aortic incompetence—yet I have never met with it except in pericarditis. A direct extension of inflammation from the pericarditis to the left lung, and consolidation due to a pneumonic process rather than to mere compression seem more likely. Post-mortem observations made by Dr. R. N. Salaman when he was pathologist to the London Hospital some years ago seemed to bear out this view, and he described the histological appearances of the consolidated lung in these cases as those of a "pneumonic subacute consolidation." I have also seen a typical croupous pneumonia of the left lower lobe complicate rheumatic pericarditis and end by crisis in the usual way. Some degree of serous pleural effusion is also occasionally found.

Whatever is the true explanation of these lung complications of pericarditis, they are of great clinical interest and importance, always indicating a severe though not necessarily fatal degree of carditis.

CHART 1.



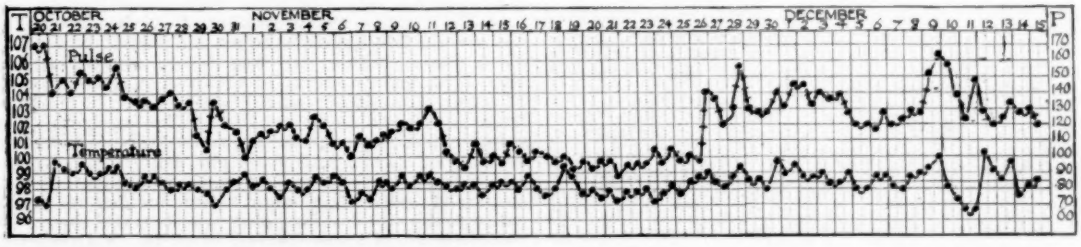
Case of carditis in a child aged 5½, showing the gradual fall of the pulse as the disease subsided and the comparative absence of fever throughout.

General Symptoms of Carditis.

Apart from physical signs in the heart the occurrence of carditis is often attended by general symptoms such as restlessness, anxiety, and delirium. The sudden appearance of pallor and anæmia is also very suggestive, especially of pericarditis. It was shown by Sir Archibald Garrod a good many years ago that acute rheumatism is a great blood destroyer, and that under its influence the red corpuscles may fall by as much as one million per c.mm. in a day. Such rapid destruction of blood seems to occur especially in cases where there is active carditis; one can sometimes tell that carditis has supervened in a child suffering from acute rheumatism by noticing that the patient has suddenly become anæmic.

Rheumatic nodules have long been recognised as accompanying carditis. Many patients with carditis never have nodules, of course, but it is extremely rare to find nodules without carditis, and so long as fresh crops of nodules continue to appear the carditis must be regarded as active. There is an impression in some quarters that the appearance of nodules is of very grave omen. This is probably the result of a misinterpretation of a statement of the late Dr. W. B. Cheadle, who said that the appearance of *massive* nodules was "the equivalent of a sentence of death." The ordinary small nodules, however, have not this serious significance.

CHART 2.



Pulse chart of child aged 2½. Acute carditis was present on admission but subsided by Nov. 13th. On the 25th an exacerbation took place with a fresh rise of pulse-rate and proved fatal.

In following the course of a case of acute carditis the pulse chart is again our best guide. To Dr. Poynton belongs the credit of pointing out that rheumatic carditis is an afebrile condition and that the temperature chart may be normal throughout its course. (Chart 1.) On the other hand, so long as the inflammation is active the pulse-rate is accelerated, only falling very gradually as the disease subsides, any recrudescence being at once shown by a fresh rise of the pulse. These ups and downs of the disease can be followed much more easily on the pulse chart than

in any other way, and since taking to charting the pulse in all these cases I find that one has a much better idea of how the disease is going on. (Chart 2.)

Treatment.

It must be admitted that the treatment of acute carditis is very disappointing. Salicylates, which so effectually control the temperature and joint manifestations of acute rheumatism, seem to exert little or no influence on the heart inflammation. It is, however, well to administer them to keep the general rheumatic process in check. Sodium iodide has been advocated; I have not found it efficacious. For the restlessness and anxiety, especially of pericarditis, small repeated doses of opium are certainly useful. In order to limit dilatation of the heart and to control the pulse-rate digitalis has often been employed, but opinions as to its usefulness are very diverse. Sturges regarded it as "worse than useless," whereas Sutherland[1] found that it had a striking effect in lessening the rate of the heart. My own experience has been that its effects are very variable. In some cases it slows the heart; more often it seems to be without influence.

In pericarditis various external applications to the heart have been tried. The late Dr. D. B. Lees was a great advocate of the ice-bag, but although it may quieten a tumultuously acting heart it is difficult to believe that it has any other effect. Blistering appears to be of little value, except perhaps in those rare cases where præcordial pain is pronounced. Leeching has supporters, but children stand loss of blood badly, particularly in the presence of the usual anæmia; blood-letting should therefore be reserved for cases with sudden engorgement of the right side of the heart and great dyspnœa, where it may be of capital value. Some form of specific treatment is wanted which will attack the microbe of acute rheumatism or its toxin directly, but so far no such treatment is forthcoming. I have tried in a few cases the effect of a vaccine prepared from cultures of streptococci taken from rheumatic nodules excised under local anæsthesia and from the blood of the heart post mortem, but without any appreciable benefit.

Prolonged rest is the best means at our command for controlling acute carditis. Here, again, the pulse chart is of great value for estimation of the length of rest required. So long as the pulse curve is slowly falling, strict rest in the recumbent position should be enforced. If the curve appears to have "touched bottom," and has remained stationary for a few days, one may cautiously begin to relax the strictness of the regime of rest, always being prepared to reinforce it if the pulse-rate is unfavourably affected. It is astonishing how unstable the heart is in many of these cases. Even the introduction of an extra pillow or the slightest excitement or emotional disturbance may produce a notable and not evanescent acceleration of rate.

The treatment of carditis, then, offers few opportunities for active intervention—rest and patience are chiefly required, and too active therapeutics may do more harm than good. In this connexion it is well to recall the story told by Dr. Sturges of a practitioner who was expressing his regret to a consultant that he had not recognised the presence of pericarditis in a case of rheumatism that they were seeing together. "Don't apologise," said the consultant, "if you had recognised it you might have treated it!"

[1] Quart. Jour. of Med., 1919, xii., 183.

THE LATE DR. G. W. H. TAWSE.—Dr. George Watson Hackney Tawse, who died recently at Whitehaven, aged 55, was a distinguished graduate of Aberdeen University, where he obtained the M.B. and C.M. degrees with highest honours in 1891. For a time he acted as house surgeon to Sir Alexander Ogston, who was then professor of surgery at the Aberdeen University, but afterwards went to Whitehaven, where, prior to entering general practice, he obtained an appointment at the West Cumberland Infirmary. To this institution he was hon. surgeon at the time of his death.

AGGLUTININS IN NORMAL SERA FOR SOME MICRO-ORGANISMS OF THE PARA-TYPHOID GROUP.

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AND
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DURING the past few years certain members of the paratyphoid group of micro-organisms have come into prominence as giving rise to disease of an enteric nature in human beings.[1 2 3 4 5] Agglutination reactions play an important part in the diagnosis of infections with members of this group of bacteria; it therefore seems desirable to have precise information of the proportion of the general population whose serums possess the power of agglutinating these bacilli and of the titres at which they react. These facts ascertained, we shall know the value of the agglutination reaction for diagnostic purposes, and can appreciate its limitations. In this investigation the three organisms dealt with have been *B. enteritidis* (Gaertner), *B. aertrycke* (Mutton), and *B. paratyphosus* C (Hirschfeld). The majority of serums have also been tested against *B. typhosus* and *B. paratyphosus* A and B. Inclusion of these latter organisms allows certain deductions to be drawn as to the extent to which the agglutinating powers of the serums for the three organisms under investigation are due to group agglutination; it is also useful as a means of a presumptive division of the cases into those which have received typhoid inoculation and those which have not.

Method of Test.

The majority of serums tested have been sent to the laboratory for a Wassermann reaction, and it was only possible to obtain accurate information regarding previous antityphoid inoculation in about a third of them. The tests were carried out between January and September, 1921; we have tested over 1000 serums against these various organisms. The serums were chiefly obtained from the venereal department, from patients in the hospital wards suffering from diseases other than enteric, with a few from members of the laboratory staff. The majority were from people between the ages of 18 and 60, nearly twice as many were from males as females. The emulsions were kindly made for us by Dr. G. S. Wilson. Three batches of emulsion for each organism were made in all. The first 300 serums were tested against the first batch, the second 300 against the second batch, and so on. Each batch before use was tested against a high titre homologous serum to find out whether the use of a reduction factor would be necessary in changing from one emulsion to another. The emulsions were standardised to contain approximately 750 million bacilli per c.cm., and 0·25 per cent. formalin was added to preserve them. Dreyer's technique has been employed with the slight modification of using calibrated instead of dropping pipettes, and the results are returned in titres instead of units. No attention has been paid to agglutination occurring below a dilution of 1/20.

The result of testing 1000 serums against these organisms was that the various types were agglutinated by the following percentages of serums: *B. typhosus*, 29; *B. paratyphosus* A, 17; *B. paratyphosus* B, 23; *B. paratyphosus* C, 8; *B. aertrycke* (Mutton), 16; *B. enteritidis* (Gaertner), 11; giving standard agglutination at a dilution of 1/20 or higher.

As regards *B. paratyphosus* C, the percentage was calculated from 700 cases only, for the following reason. The first 300 serums tested produced only one capable of agglutinating *B. paratyphosus* C. Of the second 300, however, it was agglutinated by 6 per cent. of the serums, and of the remaining 400

it was agglutinated by 9 per cent. of serums. A possible explanation of this result is that the batch of emulsion used for the first 300 serums, although agglutinating to full titre with its homologous high titre serum, was not coagglutinated by serums containing para. B agglutinins, whereas the second and third batches of emulsion (made after several subcultures) responded to a para. B serum.

Andrewes [6] and others have shown that an emulsion of para. C, although agglutinating to full titre with its homologous serum, may only be coagglutinated by a para. B serum after several subcultures. If this be the explanation it is a possibility that the one serum agglutinating *B. paratyphosus* C in the first batch of emulsion came from a subject who had received inoculation with this organism—a measure carried out on the Salonica front. He also agglutinated *B. typhosus*, *B. paratyphosus* A and B, but we were unable to get in touch with him to ascertain details of his inoculations.

As far as we know, the only work of this kind that has been published is a report on the agglutinating properties of certain serums against a particular strain of *B. enteritidis* (Gaertner) by O'Farrell in 1916.[7]

As a result of his investigation he came to the conclusion that typhoid inoculation had no effect on the agglutinating power of a serum against the particular strain of *B. enteritidis* (Gaertner) he was testing. However, his uninoculated cases numbered only 32, and furthermore his tests were performed before the triple vaccination became general, so the results are hardly comparable with those presented here.

Difference of Results in Inoculated and Uninoculated Persons.

In the present investigation it soon became apparent that serums coming from inoculated subjects were more likely to agglutinate *B. enteritidis* (Gaertner), *B. aertrycke* (Mutton), and *B. paratyphosus* C than those obtained from uninoculated persons, as one would expect. If we now compare the results of serums from persons known to have received inoculation with typhoid vaccine or T.A.B. with serums from persons known to be uninoculated, the difference is seen to be very striking. (Table I.)

TABLE I.

Organism.	Known uninoculated.		Known inoculated.	
	Number of serums tested.	Percentage agglutinating.	Number of serums tested.	Percentage agglutinating.
B. paratyphosus C ..	148	4	126	23
B. aertrycke (Mutton) ..	181	10	149	32
B. enteritidis (Gaertner)	181	4	149	24
B. typhosus	181	3	149	89
B. paratyphosus A ..	181	Nil	149	58
B. paratyphosus B ..	181	4	149	71

The practical points of interest emerging from this table are: (1) Among the uninoculated population 10 per cent. of people will probably agglutinate *B. aertrycke* (Mutton) and 4 per cent. are likely to agglutinate *B. paratyphosus* C and *B. enteritidis* (Gaertner), giving standard agglutination at a titre of 1/20 or higher; (2) among people who have received T.V. or T.A.B. a year or more previously there will be found between 20 and 30 per cent. who will agglutinate *B. paratyphosus* C, *B. aertrycke* (Mutton), and *B. enteritidis* (Gaertner) at a dilution of 1/20 or higher. It may be mentioned that the uninoculated cases gave no history of a previous enteric infection or history of food poisoning.

As so many more males than females received typhoid inoculation in the war, when we compare the results according to sex we should expect a preponderance of the males to agglutinate these organisms. This we find to be the case, thus:—

Percentage of 276 serums from males.	Percentage of 165 serums from females.	Organism agglutinated.
42	5	*B. typhosus*
28	2	*B. paratyphosus* A
39	7	*B. paratyphosus* B
11	3	*B. paratyphosus* C
23	15	*B. aertrycke* (Mutton)
11	5	*B. enteritidis* (Gaertner)

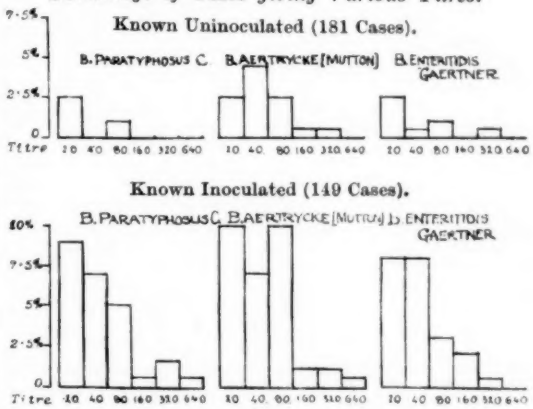
If we now take only the cases known to be uninoculated we find, with the exception of *B. typhosus*, a slight preponderance amongst females, if 61 cases be thought a sufficient number for purposes of comparison, thus:—

Percentage of 111 males known to be uninoculated.	Percentage of 61 females known to be uninoculated.	Organism agglutinated.
4·5	1·5	*B. typhosus*
Nil	Nil	*B. paratyphosus* A
4·5	4·9	*B. paratyphosus* B
4·3	5·6	*B. paratyphosus* C
9·9	10·9	*B. aertrycke* (Mutton)
3·6	7·8	*B. enteritidis* (Gaertner)

This is of interest in view of Captain T. R. Ritchie's work.[8] He found a higher percentage of positive results in females than in males when performing similar tests with *B. typhosus* and *B. paratyphosus* A and B.

We will now study the titres that have been encountered. (See Charts.)

Percentage of Cases giving Various Titres.



It should be noted that titres as high as 1/320 for *B. enteritidis* (Gaertner) and 1/640 for *B. aertrycke* and *B. paratyphosus* C have been met with. Some of these high titres have occurred amongst the inoculated, some amongst the uninoculated. None of the inoculated cases had received inoculation for less than a year previously, and some not for two or three years, so one can imagine that a recently inoculated subject might give a titre much higher than 1/640 for any of the three organisms under investigation. Owing to the small amount of serum available, absorption tests have not been carried out to ascertain which of the organisms in the triple vaccine give rise to the secondary agglutinins for the organisms under investigation, but if we study the serums that agglutinate *B. typhosus* only and do not agglutinate para. A or B, we have 63 serums of which: 4 per cent. also agglutinate *B. paratyphosus* C, 9 per cent. also agglutinate *B. aertrycke* (Mutton), and 7 per cent. also agglutinate *B. enteritidis* (Gaertner). Whereas, of those that agglutinate *B. paratyphosus* B only, and not *B. typhosus* or *B. paratyphosus* A, we have 34 serums of which: 29 per cent. agglutinate *B. paratyphosus* C, 67 per cent. agglutinate *B. aertrycke* (Mutton), and 6 per cent. agglutinate *B. enteritidis* (Gaertner). This seems to indicate that the paratyphoid C and aertrycke (Mutton) agglutinins are chiefly due to coagglutinins

derived from paratyphoid B, whereas the Gaertner agglutinins may apparently come either from *B. paratyphosus* B or *B. typhosus*.

In a serum giving heterologous agglutination, it may be taken as a general rule that the higher the titre for the homologous organism the more likely is the serum to give secondary agglutination for the organisms closely allied to it, and as the homologous titre becomes lower so will the power of giving rise to secondary agglutination usually become less.

Thus, for the sake of argument, if we assume that the para. C agglutinins in the inoculated are chiefly secondary to *B. paratyphosus* B, and we study the serums which agglutinate both these organisms we should expect to find the highest percentage of serums agglutinating *B. paratyphosus* C to occur amongst the serums giving the highest titres for *B. paratyphosus* B, and this percentage would gradually descend as the para. B titres became lower. On the other hand, if the para. C agglutinins were not secondary to *B. paratyphosus* B we should not expect to find a greater percentage of cases agglutinating *B. paratyphosus* C amongst those giving higher para. B titres than amongst those with lower ones. The results have been tabulated in this manner in Table II.

TABLE II.

B. typh. = Total number of cases agglutinating *B. typhosus*. B. aert. = Percentage of cases also agglutinating *B. aertrycke* (Mutton). B. para. A = Total number of cases agglutinating *B. paratyphosus* A. B. para. B = Total number of cases agglutinating *B. paratyphosus* B. B. para. C = Percentage of cases also agglutinating *B. paratyphosus* C. B. Gaert. = Percentage of cases also agglutinating *B. enteritidis* (Gaertner).

Titre.	B. typh. total.	B. aert. per cent.	Titre.	B. para. A total.	B. aert. per cent.	Titre.	B. para. B total.	B. aert. per cent.
320	41	41	320	8	50	320	12	58
160	55	38	160	17	52	160	34	58
80	78	32	80	37	43	80	79	44
40	56	19	40	53	39	40	61	37
20	37	29	20	32	18	20	43	32

Titre.	B. typh. total.	B. para. C per cent.	Titre.	B. para. A total.	B. para. C per cent.	Titre.	B. para. B total.	B. para. C per cent.
320	34	17	320	7	42	320	10	50
160	38	21	160	14	28	160	27	33
80	61	18	80	33	21	80	58	29
40	46	15	40	41	24	40	53	26
20	30	23	20	29	9	20	34	11

Titre.	B. typh. total.	B. Gaert. per cent.	Titre.	B. para. A total.	B. Gaert. per cent.	Titre.	B. para. B total.	B. Gaert. per cent.
320	41	34	320	8	37	320	12	58
160	55	32	160	17	17	160	34	35
80	79	24	80	37	35	80	79	30
40	56	17	40	53	24	40	61	19
20	37	16	20	32	25	20	43	13

The results are such as would be expected if the agglutinins for *B. aertrycke* (Mutton), *B. paratyphosus* C, and *B. enteritidis* (Gaertner) had been produced in response to immunisation with T.A.B. vaccine. Examination of the table will show that the correlation is most striking between the agglutination of *B. aertrycke* (Mutton), *B. paratyphosus* C, and *B. enteritidis* (Gaertner) on the one hand, and *B. paratyphosus* B on the other. Since, however, a high titre for *B. paratyphosus* B is frequently associated with a high titre for *B. typhosus* and *B. paratyphosus* A among patients who have been immunised against all three organisms, we should expect the correlation to extend to these two organisms. This is obviously the case, but it is only in the case of *B. enteritidis* (Gaertner) that the correlation with typhoid agglutination is consistent throughout. Thus the results recorded in this table are in accord with the conclusions drawn from other evidence, that the agglutination of *B. aertrycke* (Mutton) and *B. paratyphosus* C by the serum of inoculated subjects chiefly results from heterologous agglutination produced in response to immunisation with *B. paratyphosus* B, while the agglutinins acting on *B. enteritidis* (Gaertner) may be secondary to the specific agglutinins for either *B. paratyphosus* B or *B. typhosus*.

The conclusions, then, which may be drawn from this work would seem to be as follows:—

1. Amongst the general population a considerable proportion of individuals yield serum agglutinating *B. paratyphosus* C, *B. aertrycke* (Mutton), and *B. enteritidis* (Gaertner). This proportion is definitely higher amongst those who have received typhoid inoculation than amongst those not so treated, and therefore is much higher in males than in females.

2. Some evidence is brought to show that the agglutination of *B. aertrycke* and *B. paratyphosus* C is largely due to secondary agglutination from the paratyphosus B element of the triple vaccine, whereas *B. enteritidis* (Gaertner) seems to be coagglutinated both by the typhoid and paratyphoid B elements.

3. Titres as high as 1/320 and 1/640 for these micro-organisms may be encountered amongst individuals who yield no evidence of existing or previous enteric infection. So, for practical purposes, if a diagnosis is to be made on a single agglutination reaction the titre must be very considerably higher than 1/640 for these organisms. We shall probably be justified in regarding a titre of over 1/1000 as suggestive of infection with the organisms concerned, and a titre of over 1/2000 as strongly suggestive of the same conclusion, but in all cases it will be necessary, if an accurate diagnosis is to be arrived at, to perform repeated tests and to demonstrate that fluctuation in the agglutinin-content of the patient's serum which is now generally recognised as characteristic of infection with organisms of this group and which the studies of Dreyer and his associates have enabled us to follow with an accuracy hitherto unobtainable.

In conclusion, our thanks are due to Dr. W. W. C. Topley, at whose suggestion the investigation was carried out, for his kind advice throughout; to Drs. A. R. Berry, Henry Wilkinson, F. G. Rose, and S. D. Stewart for their help in performing the tests; and finally to Dr. B. Graves and others for supplying details regarding the inoculation states of the patients.

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THE COLLOIDAL BENZOIN REACTION IN THE CEREBRO-SPINAL FLUID.

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IT has been known for some considerable time that the cerebro-spinal fluid presents certain specific alterations in syphilitic disease of the central nervous system. The number of mononuclear cells present is increased, the globulin content becomes augmented, and along with these the Wassermann reaction (W.R.), in the fluid, becomes positive in a large proportion of cases. It is known that the appearance of a positive W.R. in the blood is associated with certain changes in the physical state of the serum which are best brought out by this test, but which can also be demonstrated in more obvious fashion. The simple mixing of the serum with certain of the alcohol-soluble antigens in use in the test will result, in a large proportion of cases of syphilis, in the appearance

of a visible precipitate. This is the Sachs-Georgi reaction. The alterations in the serum which are associated with this test are analogous to similar changes in the cerebro-spinal fluid which endow it, in cases where the W.R. in the fluid is positive, with the property of precipitating certain colloids. The first colloid successfully used in this connexion was colloidal gold, found by Lange[1] to be precipitated by cerebro-spinal fluid in cases of syphilis of the central nervous system. The zone in which this takes place, when constant quantities of the colloid are added to a series of tubes containing falling amounts of cerebro-spinal fluid, differs somewhat in cases of general paralysis and tabes dorsalis, each disease having a special type of reaction; the difference, however, is one of degree rather than of kind. Precipitation is also produced by the cerebro-spinal fluid in other pathological conditions of the meninges, but here the type of precipitation is distinctly different and not very liable to be confused with the condition found in parasyphilis. The test has been found of practical use, and has a certain definite place in the routine of pathological examinations; its chief drawbacks are the unstable nature of the gold colloid and the difficulty of its preparation. Recently Gullain, Guy-Laroche, and Lechelle[2] showed that a similar reaction takes place if a colloidal suspension of gum-benzoin is employed in place of the gold. The present paper details the results obtained by me with this method.

Technique of the Test.

This technique is extremely simple. A progressive series of dilutions of the cerebro-spinal fluid, which should be free from admixture with blood, is made in a solution of sodium chloride containing 0·1 g. of the salt per litre of distilled water. The first tube of the series contains three parts of cerebro-spinal fluid to one of saline. In the second tube the fluid is in a dilution of 1 in 2, in the third 1 in 4, and so on. The last tube (No. 15) contains cerebro-spinal fluid in a dilution of 1 in 16,384 parts of saline. An equal quantity of a freshly-prepared colloidal suspension of gum-benzoin is then added to each tube, and a control of the suspension and the diluent alone is also put up. The test is allowed to stand at room temperature. Where precipitation is going to occur it rapidly becomes visible, the particles of benzoin flocculating and then forming a sediment at the bottom of the tube. The reaction can be read in a few hours but may be conveniently allowed to stand overnight, by which time sedimentation is complete in the tubes where this is taking place.

According to the authors of the test there is practically no precipitation in any of the tubes in cases in which the cerebro-spinal fluid is normal. In parasyphilitic disease a precipitate is produced in those tubes in which the cerebro-spinal fluid is most concentrated, beginning with the first and gradually disappearing as the greater dilutions are reached. In meningitis a different type of reaction is said to occur, the earlier tubes being devoid of precipitate, but a zone of precipitation occurring in the succeeding tubes, which then tails off as in the former case.

In the present experiments it has been found that a certain amount of precipitation always occurs with normal cerebro-spinal fluids (see Figure, Cases 7 and 34). This begins in the fifth tube of the series and is present in a short zone over four or five tubes. On the other hand, in cases in which the W.R. in the fluid is positive it is usual to get a wide zone of precipitation beginning in the first tube and only disappearing where the concentration of cerebro-spinal fluid becomes extremely small—e.g., in the tenth or twelfth tubes. The types of reaction can be classed as:—(1) Positive: a large zone of precipitation, beginning in the first tube; (2) negative: a narrow zone of precipitation, not affecting the earlier tubes; (3) certain intermediate cases which do not fall into either class, and will be referred to as "ambiguous."

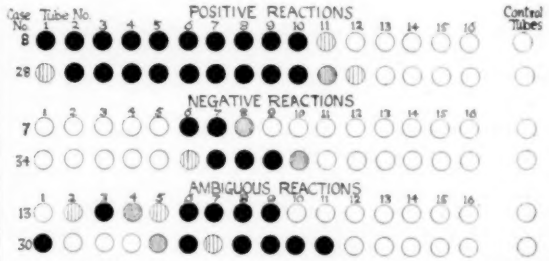
Results.

The test has been carried out with 51 cerebro-spinal fluids and the following results have been obtained:—

Fluids with a positive W.R. (17 cases)			Fluids with a negative W.R. (34 cases)		
Benzoin test	Positive ..	16	Benzoin test	Negative..	25
	Ambiguous	1		Ambiguous	7
	Negative..	0		Positive ..	2

The cases having a positive W.R. were clinically those of general paralysis, tabes dorsalis, and cerebro-spinal syphilis. The single case in this series having a positive W.R., but failing to give a positive benzoin reaction, is No. 13 (see Figure), a tabetic. Here the

Diagram Showing Types of Reaction.



reaction will be seen to be not definitely positive, but to approach that type; it was obtained in a fluid which contained some blood. It thus appears that the positive benzoin reaction runs very closely parallel to the positive W.R.

The negative type of benzoin reaction (Cases 7 and 34) is characteristic of the normal fluid. In ten imbeciles, in whom the W.R. in the cerebro-spinal fluid was negative and in whom the fluid showed no departure from the normal, it was constantly obtained in this typical form. The remaining 25 fluids, in which the W.R. was negative, came from diverse sources. All were cases of suspected disease of the central nervous system, the fluids being sent to the laboratory for diagnostic purposes. Fifteen of these gave definitely negative benzoin reactions. Clinically these were cases of cerebral tumour (6), tabes dorsalis (1), depressed fracture (1), injury to cord (1), chronic anterior poliomyelitis (1), aortic disease (1), aneurysm (1), and disseminated sclerosis (2).

Details of Cases.

In two cases the negative W.R. was associated with a positive benzoin reaction. These were:—

CASE 24.—The clear fluid obtained after centrifugalisation in a case of septic meningitis.

CASE 27.—Diagnosis, cerebral tumour. No clinical details could be obtained.

In seven cases the negative W.R. was associated with an ambiguous benzoin reaction. These were:—

CASE 15.—A xanthochromic fluid with an excess of globulin.

CASE 16.—Fracture of the spine, with blood in the cerebro-spinal fluid. At a later stage the fluid became clear and the reaction negative.

CASE 18.—Diagnosis, amyotrophic lateral sclerosis. No clinical details could be obtained.

CASE 22.—Diagnosis, cerebro-spinal syphilis.

CASE 30.—Tuberculous meningitis. The fluid contained 45 lymphocytes per cubic millimetre.

CASE 31.—Diagnosis, tuberculoma. No clinical details obtainable.

CASE 44.—Diagnosis, general paralysis of the insane. In this case the W.R. showed definite delay in lysis.

It will thus be evident that although the normal cerebro-spinal fluid gives a negative result nevertheless results approaching the positive type of reaction, and here termed ambiguous, occur in cases of cerebral and spinal meningeal disease other than syphilis, and that occasionally, as in Case 24, a positive reaction may occur in an inflammatory condition. In certain

of the cases detailed above, where in rigid fairness the results have been classed as ambiguous, the clinical diagnosis has been of syphilis (Cases 22 and 44), and although the W.R. has been negative the benzoin test has shown that, at all events, the cerebro-spinal fluid is altered and does not react normally.

Nature of the Reaction.

A few observations which are as yet incomplete, have been made on the nature of the reaction. The colloidal benzoin used is an electro-negative suspensoid and is fairly readily precipitated by electrolytes, the concentration of sodium chloride required to precipitate it lying between 0·25 and 0·5 g. per litre. The point arose for consideration whether the precipitation might be due to the presence of increased amounts of electrolytes in the positively reacting fluids. It was thought that if such variations in the salts occurred these would, in all probability, vary together, and consequently the chloride content of the fluids would afford an index of those salts. This was estimated in 11 positively reacting cases and was found to average 6·25 parts per 1000, whilst in 13 negatively reacting cases the mean figure was 6·76 parts per 1000, the variations, if any, being thus on the side of a greater amount of salts in the negative fluids and therefore the hypothesis becomes untenable. Moreover, precipitation occurs in tubes in which the concentration of saline is many times less than that necessary to produce precipitation. The benzoin reagent, however, is fairly readily precipitated by colloid precipitants. Cruickshank [3] showed, for the colloidal gold test, that the globulins of the cerebro-spinal fluid have a precipitating action, whilst the albumin fraction acts in the opposite direction and exerts a protective influence on the suspension. It has been found in the present work that it is usually in cases in which the total protein content of the fluid is increased that the benzoin reaction is positive and, although separate globulin estimations have not been made, from the well-known fact that these are increased in most of the clinical conditions in which this test is positive, it is highly probable that the mechanism of the present reaction is the same as that of the colloidal gold test. The exact type of reaction which will occur is a rather complex matter, depending not only on the relative proportions of albumin and globulin in the fluid, but also on the concentration of electrolytes, which have a very definite influence upon the sensitiveness of the reagent, since it is easy to modify the type of reaction by altering the concentration of these in the diluent.

Conclusions.

From the above experiments it would appear:—

1. That the negative reaction occurs with normal cerebro-spinal fluid.

2. That the positive reaction indicates an alteration in the cerebro-spinal fluid which is very probably syphilitic in nature.

3. That an ambiguous reaction indicates a pathological condition in the cerebro-spinal fluid, but does not indicate its exact nature.

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WORTHING HOSPITAL.—The Committee of ex-Service men at Worthing recently received a grant from the United Services Fund, and have handed it over to the local hospital; the cheque of £1048 represents a grant of 5*s.* per head for the 4192 men of Worthing who served in the war. In return in-patients' and out-patients' letters will be allotted for the express use of ex-Service men and their families.

SOME CASES OF UNUSUAL INTEREST TO THE ANÆSTHETIST.*

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MY excuse for reporting the following cases is that they have seemed to contain features of interest not only to the anæsthetist but to the surgeon, the general practitioner, and perhaps to those specially interested in the study of the heart.

CASE 1.—Temporary mania occurring in connexion with the use of Cotton process ether to produce analgesia without anæsthesia. The patient was an Italian, aged about 25, a strong, healthy-looking man, who came to the outdoor department of the Royal Victoria Hospital with a recent simple fracture of the right radius. He was told that it would not be necessary to put him to sleep while his arm was being set, but that he would be given some medicine to smell and that if he felt any pain he was to say so and more of the medicine would be given him.

A freshly-opened tin of Cotton process ether was used and the ether sprayed on a Junker's mask covered with stockinette. After a few breaths manipulation of the fractured bone gave rise to no pain. Efforts at reduction were continued for some minutes, the patient answering quite clearly when spoken to and saying that he felt no pain whatever. At one time the anæsthetic was unintentionally pressed beyond the point where the patient could answer questions, but the mask was removed at once and the patient recovered full consciousness. So striking was the effect of this ether—this was the first time of using it—that a number of students were brought into the room to witness it. The inhalation of the weak vapour was continued and analgesia maintained, the patient being still able to answer questions intelligently. However, it was again accidentally pressed to the point where the patient was either unwilling or unable to answer questions, though not by any means surgically anæsthetised in the ordinary sense. The mask was therefore removed and the face completely uncovered. Almost immediately the patient sat up and began to scream. He was restrained by some of the students but commenced to struggle violently, being in a state of ungovernable excitement and terror. He seemed to have the impression that he had been through some terrible experience and his one desire was to escape. He was allowed to get off the table and helped into his coat and overcoat. He joined a friend who was waiting for him in the hall, and then became somewhat calmer, though still very excited and terrified. His terror became intensified on seeing a tin of ether which I had unwisely retained in my hand when I followed him into the hall to help to pacify him. He said he was going home to shoot himself, and left the hospital under the care of his friend about 20 minutes after getting off the table.

On his arrival at his home he apparently came suddenly to himself and asked his wife how he came to be at home and what had happened, as he remembered nothing. He came to the hospital some days afterwards and took ether in the ordinary way without giving any trouble.

We had no repetition of this kind of experience with Cotton's ether. On the contrary, in a number of cases where it was used to obtain analgesia it was highly satisfactory. There can be little doubt that Dr. Cotton has revealed the way which sooner or later will bring us to a new era in anæsthetics.

CASE 2.—A rather stout woman, a patient of Dr. W. W. Chipman, aged 39, who was to be operated upon for salpingo-ovaritis. She had undergone curetting once eight years before, and again three years before. There were no cardio-respiratory symptoms. The pulse was from 70 to 80 a minute, regular and of good quality. There was no enlargement of the heart. There was a systolic murmur over the pulmonary area. The lungs were normal. A preliminary hypodermic injection of morphine gr. 1/6 and atropine gr. 1/150 was given at 10.45 A.M. Anæsthesia was commenced at 11.10 with gas and continued with ether, an open mask being substituted for the Hewitt's inhaler after about five minutes. Respiration during induction was free. There was no holding of the breath and no attempt at struggling. When the patient was being prepared for operation the colour, in spite of the free and deep respirations, became gradually pale and cyanotic and the pulse was observed to be failing. The idea of operating was abandoned, and the anæsthetic was stopped at 11.30, the patient being sent back to her room, her pulse on arrival

* A paper read at a meeting of the Montreal Medico-Chirurgical Society on Jan. 20th, 1922.

there having become imperceptible at the wrist. Caffeine, strychnine, and brandy were administered hypodermically. The patient recovered consciousness sufficiently to ask for a drink and to say that she felt as if she were dying. At 1.30 P.M. she died, just two hours after the anæsthetic had been stopped. Unfortunately no post-mortem was obtained.

It seems likely that this patient was suffering from some form of myocarditis. The case demonstrates how useless the ordinary examination of the heart with a stethoscope may be as a precaution taken before an anæsthetic is administered.

CASE 3.—A healthy-looking baby, 7 months old, suffering with harelip. Anæsthesia was commenced with chloroform on a Junker's mask. Before full surgical anæsthesia was obtained ether was substituted. Some five or ten minutes after the substitution the patient suddenly grew pale, the breathing became very shallow, the pupils dilated, and there was complete muscular relaxation. The anæsthetic was stopped, the head lowered, and the face rubbed with a cloth. After some minutes recovery took place, the breathing becoming deeper and the colour much better. The ether was not reapplied until the patient had recovered sufficiently to open and shut his eyes. A catheter was introduced into one nostril and light anæsthesia maintained by means of Kelly's insufflation apparatus. At the end of an hour, however, the respirations, which had been regular, were noticed to stop, the colour becoming pale and the pupils dilating. In spite of everything that could be done—e.g., artificial respiration, administration of oxygen, massage of the heart through the chest wall—the child failed to respond. There was no post-mortem.

It seems likely that this child may have been one of those cases of status lymphaticus which are so likely to die during anæsthesia. Having seen many cases of pallor with faint breathing and complete muscular relaxation in babies under the influence of ether, where chloroform was used for induction, but had been discontinued a few minutes before, we have completely abandoned the use of chloroform at the Royal Victoria Hospital for this purpose and now never see the condition.

CASE 4.—A well-developed, muscular lumberman of 50, suffering from a slowly growing tumour of the right femur. His lungs were normal. The heart dullness extended above to the third rib and on the left to 4½ inches from the mid-sternal line. The heart sounds were distant but no murmurs were heard. He was given a preliminary hypodermic injection of morphine gr. ¼ and atropine gr. 1/150. Ether by the open method was commenced at 1.30 P.M. Induction was somewhat prolonged and difficult. He made attempts to sit up, and required a large amount of ether to obtain full anæsthesia. There was some cyanosis at this stage due to the patient holding his breath.

Shortly after full anæsthesia was obtained the breathing became shallow and the face cyanosed again, the pulse remaining of good volume and tension and the pupils contracted. The ether mask was removed and some carbon dioxide administered with the inspired air. The respirations at once became deep and quick and the colour excellent. There was no shock or hæmorrhage during the operation. The anæsthetic was discontinued at 2.30 P.M., and the patient sent back to the ward. At 3.25 his condition was good except for some slight cyanosis. At 3.30 the face was more markedly cyanosed, the pulse fairly strong and regular, and the breathing stertorous, with sounds of mucus in the trachea. There was no other obstruction, as a Connell airway was in the mouth. At 3.35 the pulse became almost imperceptible, the breathing difficult, and cyanosis marked. Strychnine gr. 1/30, oil of camphor gr. 1½, were given hypodermically. Artificial respiration was begun, but a few minutes later the patient died. A post-mortem was done 19 hours after death. There was marked fatty degeneration of the myocardium with dilatation of the heart.

It is remarkable that more patients with this condition of the heart do not die upon the operating table. In this case the patient's attempt to sit up during induction of full anæsthesia and the cyanosis must have helped to overtax a heart only just able to function under normal conditions.

CASE 5.—An unmarried woman, aged 30, admitted to the Ross Memorial Pavilion as a patient of Dr. Hamilton White, to undergo an operation for deviated septum nasi. She had always led an active life and had never noticed any special distress or disturbance referable to the heart or lungs, except a certain amount of shortness of breath on exertion at times during the preceding 10 or 12 months. Just before she entered the hospital she had been leading a particularly strenuous social life. The family history was negative and her previous health good, except for an attack of appendicitis for which she had been operated on some years before. The pulse was 72. Blood pressure 108–68; there was occasional arrhythmia. There was no cardiac enlargement, both sounds being well heard at the apex and fairly strong, but the second sounds at the pulmonary and aortic areas appeared rather weak. She was prepared for operation in the usual way. A hypodermic injection of morphine gr. 1/4 and atropine gr. 1/150 were given at 7.40 on the morning of the operation. Nitrous oxide gas and ether were used to induce anæsthesia, a few drops of chloroform being given just before the patient passed into the stage of full anæsthesia. The induction was perfectly smooth. The intratracheal catheter was introduced and the operation carried out. The anæsthetic was stopped at 9 A.M. The patient left the operating room in good condition.

An hour after return to her room she woke up, retched and vomited. Dr. S. H. Martin visited her at 12.10 P.M., and found the pulse somewhat weak and irregular, and recommended that she should be carefully watched. At 12.30 she was worse, the pulse was noticeably weaker and between 60 and 70 a minute. The face was greyish. At 12.50 the pulse could not be felt at the wrist and the patient looked as if she were dying. The foot of the bed was elevated, caffeine hypodermically and rectal salines with whisky were given. After 20 minutes, the pulse began to come back and the condition to improve, so that by night the patient was fairly well. She left the hospital a few days later quite recovered. Before leaving she was examined by Dr. C. F. Moffat with the electrocardiograph. His report is as follows:—

"The ventricular complex is split and bizarre, but not prolonged in the third lead. The T wave third lead is inverted. There is a certain amount of sinus arrhythmia, otherwise the tracing is normal. From a consideration of the electrocardiogram there is evidence of disturbed ventricular function, probably chronic in nature."

This case, like the second and fourth, showed how little warning the anæsthetist may get of trouble ahead by the examination of the heart. Examination with the electrocardiograph before operation would probably give us much more accurate information as to the risk to the patient.

THE SIGNIFICANCE OF DISCHARGE FROM THE NIPPLE IN BREAST LESIONS.

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THE series of cases on which the following article is based include all those admitted for lesions of the breast to the surgical wards of the Royal Free Hospital during the past ten years (1912–1921 inclusive). The specimens of breasts (44 in number) in the pathological museum have also been examined: many of these date from a much earlier period than those in the clinical series.

Clinical Series.

The cases in the clinical series number 251, of which 247 were female, 4 male; and among these there were only 26 patients, all of them women, who gave a history of discharge from the nipple. In these 26 cases the lesions were as follows: Spheroidal-celled carcinoma, 9; chronic mastitis (cystic and non-cystic), 6; duct carcinoma, 4; duct papilloma, 4; Paget's disease of the nipple, 1; abscess, 1; seborrhœic dermatitis of the nipple, 1.

These figures cannot be considered alone, but must be taken in conjunction with the number of patients admitted for the respective lesions, as some of these are so much commoner than others. Thus, in the case of spheroidal-celled carcinoma the total number of patients treated in the ten-year series was 129, giving a percentage of about 7 with discharge. The percentage in chronic mastitis was 13·3, in duct carcinoma 36·3, and in duct papilloma 100.

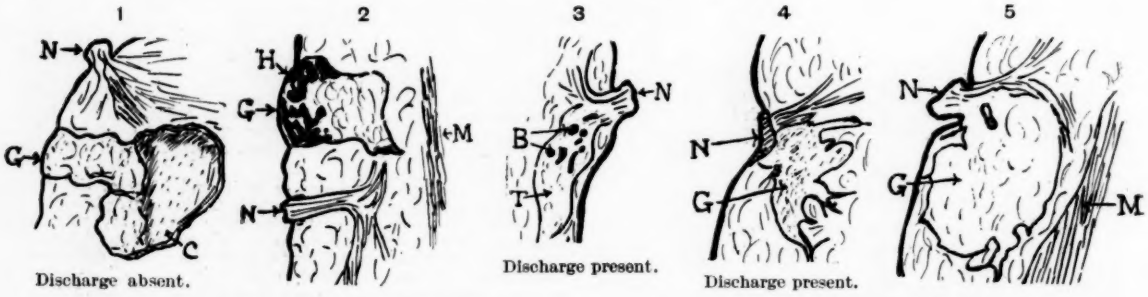
Incidence in Different Varieties of Disease.

According to the figures in this series, therefore, the only disease in which discharge is constant is

duct papilloma. On further inquiry into the history of these four patients it was found that in each case a small swelling was present in the sub-areolar region, which swelling on excision proved to be a dilated duct containing the small innocent growth. It is, perhaps, unfortunate for the purpose of analysis of these cases that such a swelling was found in each of these four, as, from time to time, a complaint of discharge is made by patients in whom, on examination, no other abnormality can be detected in the breast, but who are almost certainly suffering from this lesion. It remains possible that duct papillomata may exist in the more remote parts of the gland without giving any sign of their presence. On the other hand, there is one breast lesion which, apparently, never gives rise to nipple discharge: the fibro-adenoma in all its different varieties, including the mixed solid and cystic kind,

Situation and Nature of the Lesion giving Rise to Discharge.

If the appended diagrams are examined it will be seen that in each case where discharge was present *the lesion lay immediately beneath the nipple;* and in the specimen of chronic mastitis which is not figured the breast was riddled with cysts, several of which were in the sub-areolar region. I made the same observation when looking into the histories of the patients in the clinical series; in every case where discharge had been complained of either the clinical examination or a diagram or a description of the parts removed at operation showed the lesion to be in close proximity to the nipple. Cases of duct carcinoma, the disease in which, above all others, one would expect a blood-stained discharge, did not manifest this symptom



Figs. 1, 2, 3, Duct carcinoma. Figs. 4 and 5, Spheroidal-celled carcinoma.

N = Nipple. G and T = Growth involving skin. C = Cystic degeneration in growth. H = Hæmorrhage into growth. M = Muscle. B = Dilated ducts containing blood-stained discharge.

formerly called Brodie's sero-cystic sarcoma. This is only reasonable when we remember that these are innocent tumours entirely contained within their own capsule, and which, even when large and situated immediately beneath the nipple, are readily shelled out from the surrounding tissues and can have no possible connexion with the ducts through which a secretion must pass to reach the surface of the nipple.

Of other breast lesions there was no history of discharge in the cases of tuberculous mastitis, galactocele, and one case of melanoma included in the series. In the first-named this may well be accidental. Further, in the cases with discharge we may pass over the two of disease of the nipple itself as presenting no difficulty in diagnosis, and also the single case (out of ten of the kind) of abscess, as here the discharge was demonstrated to be pus. We are left, then, in the clinical series with four varieties of lesion giving rise to discharge from the nipple: Carcinoma (*a*) columnar-celled, (*b*) spheroidal-celled, duct papilloma, and chronic mastitis. The discharge in all varieties was sometimes described as being blood-stained, in a few cases clear or blood-stained on different occasions, in the majority serous, either yellow or greenish. It was never profuse.

Pathological Specimens.

To turn now to the museum specimens that were available. Of the 44 cases a history of discharge was given in six—e.g., duct carcinoma, 1 (out of 4 specimens of this disease); spheroidal-celled carcinoma, 3 (out of 18); chronic mastitis with multiple cysts, 1; malignant disease of the nipple, 1. In the single case of duct papilloma in the collection, in which the duct has dilated to the size of a small orange, the presence or absence of discharge is, unfortunately, not mentioned in the history. The appended diagrams (Figs. 1 to 5) which represent the slice of breast mounted in each jar, give a rough indication of the position of the lesion and its relation to the nipple. In this collection also we will ignore the case of epithelioma of the nipple, which would be self-evident, and confine our attention to the cases of malignant growth originating in the substance of the breast and those of chronic inflammation.

unless the growth involved the sub-areolar region. It must be remarked that the converse does not hold good; many cases with tumours close to the areola and, indeed, several advanced ones involving the whole breast did not give this sign. In malignant cases the presence or absence of retraction of the nipple appears to have no bearing on the case; neither does the rate of growth. Age again does not appear to be a factor of importance.

One other point seemed to stand out. In all the malignant cases except one the patient had noticed the presence of a *swelling in the breast for some time previous to the appearance of the discharge;* this fact is all the more significant when one remembers how frequently a patient suddenly becomes cognisant of a large tumour in the breast, whereas it is apparent to the surgeon that it must have been there for many months. On the other hand, a discharge from the nipple is not likely to pass unnoticed, and it seems reasonable to suppose that, in the one instance where it was recorded as being the first symptom, this was merely due to the patient's faulty powers of observation.

Chronic mastitis, whether of the solid or cystic variety, usually manifests itself in other ways, and it seems that the presence of discharge cannot help us to detect an early malignant change, as it may occur in either condition. I can, however, call to mind two or three cases in which nipple discharge was the only symptom, and in which clinical examination was absolutely negative except that pressure on the areola at one point, and one point only, elicited a drop of fluid, usually dark brown in colour. These patients, from one reason or another, refused operation, and presented exactly the same picture when re-examined several months later. These could only have been instances of a minute duct papilloma which, quite impalpable itself, had failed to cause sufficient obstruction to dilate the duct behind it. Papillomata only appear to occur in the larger ducts and not in the small ones towards the periphery of the gland; or it may be that they remain unrecognised in the latter situation.

Bearing of the Discharge on Diagnosis and Treatment.

It seems fairly clear that the determining factor is the relation of the lesion to the nipple, and not the nature of the lesion itself; but for diagnosis we can divide the cases into two groups—that in which the nipple discharge is accompanied by one or more swellings in the breast, and that in which it is the sole symptom. Into the former class fall practically all the spheroidal-celled and duct carcinomata, and also the chronic inflammations with this sign, and some of the papillomata, and it does not seem as if the discharge itself is of any great value in distinguishing between them, as, although the percentage of duct carcinomata is highest, that of chronic mastitis next, and of spheroidal-celled cancers least, yet the number of the last-named is sufficiently large not to warrant their exclusion on the ground of improbability. In any case there is no particular value in making a clinical diagnosis between two varieties of carcinoma. In the various forms of chronic inflammation the characteristic knotted feel of the gland is usually a safe guide, and a small globular swelling in the region of the areola is highly suggestive of a duct obstructed by a papilloma. These are not the difficult cases. It is in the second group, where discharge is the only abnormality that can be detected, that doubt as to the proper diagnosis and line of treatment may occur. The question of malignancy inevitably arises in any region where unexplained bleeding occurs, and some authorities go so far as to say that the breast should be amputated on this sign alone. This drastic suggestion is apt not to commend itself to a patient who feels that she is only complaining of a trivial matter; as the result of it, she may elect to do without treatment of any kind—a dangerous decision. If the surgeon feels really suspicious of the presence of a malignant growth radical operation should, of course, be strongly urged, but it is the object of this paper to show that discharge, whether blood-stained or clear, from the nipple of an otherwise apparently normal breast is in all probability *not* due to a malignant growth, and is, therefore, not an indication for immediate and complete amputation. The reasonable procedure would seem to be to determine the direction from which the discharge comes, and to excise that portion of the areola and neighbouring tissues. The piece removed should be subjected at once to a thorough naked-eye examination (a frozen section might be lucky, but might well miss the lesion altogether). Should the appearance of the tissues be suspicious the major operation must be proceeded with, but if not, if a discrete papillomatous growth is discovered or if no lesion at all is found, nothing further need be done. The patient should, of course, be kept under observation.

To sum up—I do not wish for a moment to suggest that a surgeon should hesitate to amputate a breast when there is the smallest suspicion of malignancy, nor to advocate the dangerous procedure of double operation with intermediate microscopic examination of the tissue removed in the first instance, but to suggest that discharge from the nipple is not in itself a definite expression of malignancy and should not be treated as such unless the suspicion is strengthened by the rest of the history and clinical picture.

LITERARY INTELLIGENCE.—Messrs. George Routledge and Sons are preparing a series of volumes on chemistry designed for the use of post-graduate readers and others. The Series is under the editorship of Sir William A. Tilden, F.R.S., and Prof. J. C. Philip, F.R.S., and will include "The Metastability of Matter," by Prof. Ernest Cohen; "Oxidation and Reduction in Organic Chemistry," by Dr. Oscar L. Brady, D.Sc.; "Physical Aspects of Organic Chemistry," by Prof. T. M. Lowry, F.R.S.; "Atomic and Molecular Structure in Relation to Properties," by Dr. Irving Langmuir; "The Energy Factor in Chemical Change," by Prof. J. R. Partington, D.Sc.; "Space Formulæ in Carbon Compounds," by Prof. Jocelyn F. Thorpe, F.R.S., and Dr. Christopher K. Ingold, B.Sc.; "Adsorption," by Prof. J. W. McBain; "The Theory of Quantitative Analysis and its Practical Application," by Prof. Henry Bassett.

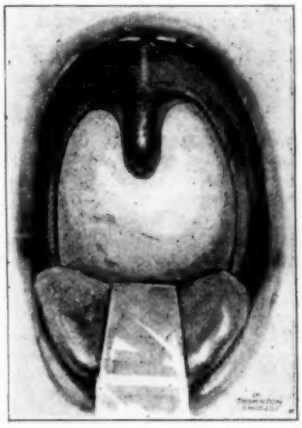
Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ANTRO-CHOANAL POLYPUS OF EXCEPTIONAL SIZE.

BY G. W. DAWSON, F.R.C.S. IREL.,
SURGEON, THROAT HOSPITAL, GOLDEN SQUARE, LONDON.

THE accompanying illustration is of an exceptionally large antro-choanal polypus, weighing 9½ drachms, occurring in a man 47 years of age, who was content to endure its presence for several years. It is a globular, glistening, pearl-coloured, firm growth, apparently filling up the entire pharynx, and bulging the soft palate forward, the uvula being spread out on its surface; its lower limit can only be seen with difficulty by strongly depressing the tongue, when it can be seen to reach close to the entrance to the larynx. It is remarkable how little respiration or deglutition is impeded. The subject can breathe through either nostril quite well. Beyond the peculiar muffled speech, and the occurrence of fits of suffocation should he happen to turn on his back during sleep, there are no symptoms.



Drawing showing antro-choanal polypus filling up the naso-pharynx.

Examination. — Anteriorly the nose appears normal, it is only on the application of cocaine that the stalk of the growth can be demonstrated, lying under the anterior end of the middle turbinate bone. Transillumination was much darker on the affected side, and by passing the finger into the post-nasal space the cord-like stalk was easily felt to disappear into the right choana.

Operation.—The antrum was opened through the canine fossa, the attachment was close to the orifice of the cavity, the lining membrane of which was in a state of polypoid degeneration.

Pathology of the Condition.—The growth originates by a cystic or polypoid degeneration of the lining membrane of the antrum, close to its orifice. It may be laid down as an axiom that a polypus growing from a cavity with a narrow opening—whether it is the antrum, the sphenoidal sinus, or an ethmoidal cell—is always single, it being impossible for another polypus to pass through the blocked opening. In recent cases the surface is covered with ciliated epithelium which in places is squamous owing to pressure. The body is made up of a network of fibrous tissue, forming spaces which are filled with the mucigenous watery material. There is, therefore, no true cyst present. In long-standing cases with years of growth the latter presents a solid firm appearance, due for the most part to its many covering layers (six or seven) of epithelium flattened on the surface, but more cubical in the deeper layers, and there is more fibrous tissue in the body of the growth.

Treatment.—After the application of cocaine, the polypus may be removed by passing a snare or a Luc's forceps through the anterior nares. Sometimes the pedicle as it passes backwards under the middle turbinate may be engaged by a blunt hook, traction on which will tear away the growth at its origin. The simplest of all to deal with are those that appear below the palate—it is only necessary to raise the latter and seize the polypus with a Luc's forceps, when the whole growth will come away at its origin in the antrum. In many cases these simple measures suffice. Where trans-

illumination is dark, indicating polypoid degeneration of the sinus-lining membrane, and above all when pus is present, it is advisable to open the antrum through the canine fossa.

These simple growths were up to quite recent years confused with the more formidable angiofibromas. In 1887 Sands, writing in the *New York Medical Journal*, removed a smooth mass pendent from the posterior nares with the galvano-cautery and remarked that very few are suitable for this method, as they are mostly attached to the skull by a broad base. In 1904 Fischer, a Belgian laryngologist, removed a pedunculated growth the size of a hen's egg from the nasopharynx of a boy aged 16 years, by means of a Gottstein's curette. In order completely to destroy the insertion, the nasopharynx was thoroughly curetted; the slender pedicle appeared to spring from the left choana. These two cases were doubtless antro-choanal polypi. It was not till the year 1906 that Killian wrote an article on the origin of Mucous Polypi of the Choana and demonstrated that they originated in the antrum.

POSTURAL SUBSARTORIAL BURSITIS.

BY R. DAVIES-COLLEY, M.CH. CAMB., F.R.C.S. ENG.,
SURGEON, GUY'S HOSPITAL, LONDON.

MY object in this communication is to draw attention to a form of postural bursitis which has, as far as I am aware, never before been described. I had more than once met with cases of chronic inflammation and enlargement of the subsartorial bursa for which I could not account, before I discovered its very simple causation and its equally simple and most effective treatment. It was, in fact, only when I developed the condition myself and was puzzled to know why the swelling of the bursa and the accompanying pain were always greatest when I first stretched my legs in the morning, that the explanation suggested itself that it was indeed the night's rest that was the cause of the lesion. It is simple enough; if one lies on one's side in bed with one knee resting upon the other, the inner tuberosities of the two tibiæ with the overlying tendons of the sartorius muscles and their bursæ are pressed directly against one another. It is, I believe, nothing more than this pressure that is the cause of the bursitis. It is, at any rate, a fact that if the pressure is taken off the tuberosities by one means or another the inflammation of the bursa rapidly subsides and does not return. I have met with some ten or a dozen cases during the last few years, about equally divided between the sexes.

Symptoms.—The symptoms are characteristic. They are: (*a*) Pain in the region of the inner tuberosity of the tibia on movement, especially marked during the first hour or two after rising in the morning. The pain develops gradually and without apparent cause; at first it may amount to no more than a mere stiffness which passes off during the day, but later, when the bursa swells, it causes much discomfort and lameness. (*b*) Swelling over the tibial attachment of the sartorius muscle. This may be limited to the bursa, which becomes definitely outlined and can be shown to fluctuate. The amount of the swelling is seldom very great, though in one of my cases the sac was as large as a pigeon's egg and quite tense. At other times the swelling is diffuse, and there is inflammatory œdema of the subcutaneous tissue over a considerable area as well as enlargement of the bursa. In these cases the skin is red and more or less acutely tender.

Diagnosis.—The diagnosis ought to present no difficulty, though every case referred to me has arrived with an erroneous one. The mistake has usually been to attribute the symptoms to disease of the head of the tibia or of the knee-joint, and chronic periostitis, abscess, and exostosis of the former and internal derangement, early tuberculous disease, osteo-arthritis, and Morant Baker's cyst of the latter have all, at different times, been held responsible for them. The definite localisation of the pain and tenderness to the position of the bursa, the absence of excess of fluid in, and the perfect freedom of movement of the joint, and the lack of any history of trauma should be enough to exclude disease of the knee. The differential diagnosis from lesions of the bone may not be so easy, especially as an inflamed bursa is not uncommon over an exostosis in this situation, but if there is any doubt a radiogram will at once clear it up.

Treatment.—If the cause of the bursitis is borne in mind the treatment will be obvious. Either the patient must be induced to sleep in such a position that the knees do not rest upon one another, or, better, a thick pad of wool should be worn at night over the inflamed bursa, so that if the knees do come into contact the pressure will be distributed, and the tuberosities of the tibiæ will not impinge directly upon each other. It is quite unnecessary to wear the pad during the day.

In all my cases the latter method of treatment has been rapidly and completely successful.

DIFFERENTIAL DIAGNOSIS BETWEEN CHOLELITHIASIS AND DUODENAL ULCER.

BY W. J. MCKEAND, M.B., CH.B. EDIN.

THE following case presents certain features of interest which illustrate the difficulties sometimes met with in differentiating between duodenal ulcer and gall-stones.

History.—Mrs. X., aged 48, married, consulted me some months ago for epigastric pain and "indigestion." The pain apparently came on one to two hours after food, and she herself described it as a "hungry pain," because she soon found that the taking of food relieved it. It became more intense in the early hours of the morning, and she always had a plate of biscuits or light food by the bedside to alleviate it. She described it as being in the centre of the stomach, sometimes going right round like a girdle or straight through to the back. She had no sickness, but frequently a feeling of nausea, particularly when the pain was intense, and at these times she complained of a sour, acid taste in the mouth. Her past history was uneventful, except that she had suffered from occasional attacks of "indigestion" since her youth and had always been constipated.

Examination.—There was tenderness over the epigastrium and right hypochondrium, its maximum point of intensity being just to the right of the middle line. She had tenderness behind about the level of the tenth dorsal. Skin sensitiveness was much more pronounced to the right of the middle line. Murphy's sign—tenderness on pressure over the tip of the ninth costal cartilage on deep inspiration in the sitting position—was absent. No enlargement of liver or gall-bladder could be made out. There was no jaundice and the other systems were negative. Nothing abnormal was found in the urine. A test-meal was suggested, but on explaining its technique was refused.

Treatment.—A specimen of fæces was sent to a pathologist and the presence of occult blood detected. A diagnosis of duodenal ulcer was felt to be justified, and she was treated on this hypothesis. She was put to bed at rest for six weeks, carefully dieted, and treated on the usual medical lines. Her condition improved; the pain, except for occasional attacks during the night, was very much better, and she found she could take a reasonable amount of food without discomfort. She was sent to the south of France for three months; whilst there she wrote and told me that so long as she stuck to her diet she felt very well, but if she attempted to take any luxuries she had a recurrence of the pain. She remained comparatively well for six to eight weeks on her return to London, and then her symptoms recurred as bad as ever. She was again rested and dieted, and again improved. This improvement was not maintained, however, and the nocturnal pain became more severe. An operation was advised, but before submitting to it she thought she would like another opinion. She saw a consulting physician, who confirmed the diagnosis of duodenal ulcer and advised rest and diet for six months. As her condition did not improve and she was becoming very neurotic I sent her to a radiologist for a barium meal. He reported as follows: "The stomach is active and very irritable. There is irregularity of the duodenal cap, which is in favour of a diagnosis of duodenal ulcer. The colon is ptosed and shows marked stasis with a suggestion of adhesions between the ascending and the first part of the transverse colon."

I persuaded the patient to see a surgeon, and an operation was agreed to.

Operation.—At the operation, performed by Mr. L. E. Barrington-Ward, a distended gall-bladder full of stones was found, with slight congestion of the duodenum in its immediate vicinity. The gall-bladder was removed, and the patient made an uneventful recovery. Since her operation she has had no pain and "can eat anything."

Remarks.

The curious points about the case are, I think, the type of pain so characteristic of duodenal ulcer, the presence of occult blood in the stools, and the apparent beneficial effect of rest and diet, together with the

absence of Murphy's sign, the absence of jaundice throughout the illness, no obvious enlargement of the gall-bladder on palpation and percussion, and the absence of definite signs of gall-stone colic, which all led to erroneous diagnosis. A test-meal, with estimation of acidity of stomach contents, as advised by Sir Berkeley Moynihan in these cases, would probably have made one more guarded, but it is very difficult to persuade patients, particularly of the neurotic type, to submit to it in private practice.

Compton-terrace, N.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

NOTIFICATION OF TUBERCULOSIS.

A MEETING of this section of the Royal Society of Medicine was held on May 26th, with Dr. A. K. CHALMERS, the President, in the chair, when Dr. REGINALD DUDFIELD read a paper on

Reforms Needed in the Notification of Tuberculosis.

The speaker began by remarking that the primary object of notification was to secure that all tuberculous patients should have the advantage of treatment under the scheme. A second, and by no means unimportant, aim was the collection of statistical data. Without reliable data as to the prevalence of the disease it was impossible either to make adequate provision for treatment or to judge the results either of treatment or methods of prevention. At present notification was incomplete. During the eight years 1914–21, 1439 deaths from all forms of tuberculosis occurred in Paddington. Of these, 298 represented cases only made known to the M.O.H. by the registration of death, while in 106 instances notification was made after death—i.e., in 404, 28 per cent., of all cases ending fatally, the first information of the presence of the disease was the death certificate. Turning to notifications, of 3723 cases notified during 1914–21, 106 referred to persons already dead and 247 to persons dying within a month of notification, so that 353—9·8 per cent.—could not be dealt with under the tuberculosis scheme. The full significance of deaths occurring within a short time of notification could only be known were the normal duration of a case of tuberculosis known. The speaker held that most cases of pulmonary tuberculosis in the adult were re-activations of infection acquired in infancy or youth, and that accordingly some proportion of deaths occurring shortly after notification must be inevitable. Dr. Dudfield referred to the work of Wurtzen, of Copenhagen, on the average duration of pulmonary tuberculosis reckoned from the onset of symptoms. The averages (in months) varied from 19·5 in the age group 15–20 to 45·8 at ages over 45 in males, and from 21·2 to 47·4 in females. Dr. Dudfield then considered the distribution of fatal cases not notified to him :—

Deaths occurring in Paddington.—These numbered 143 from all forms of tuberculosis during the eight years considered; 87 of these were under the care of practitioners.

Deaths occurring outside Paddington.—There were 155 such deaths, a large majority in institutions. Of 92 deaths from pulmonary tuberculosis in institutions 60 occurred in lunatic asylums. Dr. Dudfield found that the practice of the medical staff of institutions as to notification was not uniform; some did not notify, others refrained from doing so at the request of the medical officers of health of the districts in which the institutions were situated, others notified systematically the local medical officers of health, but the relevant certificates were not transferred to Dr. Dudfield as M.O.H. of Paddington. The late Local Government Board had informed the superintendent of one of the large asylums that "where . . . . a patient has been for a long time an inmate of an asylum, the Board are advised that the asylum should be regarded as the usual place of residence" of the patient for the purpose of the regulations. The result was that while the death when it occurred was allocated by the Registrar-General to the area whence the deceased was admitted to the asylum, no transfer of the notification certificate to the medical officer of health of the district of origin was made. Of 106 notifications received after the death of the patient, 62 with respect to cases of pulmonary and 44 with respect to other forms of tuberculosis, 54·8 per cent. of the former, and 75 per cent. of the latter were deaths in institutions. Of 247 cases wherein death occurred within a month of notification, 68·4 per cent. were in institutions. Dr. Dudfield presented tabulations of the distribution by age and sex of cases notified 0–1, 1–3, 3–6, and 6 or more months before death. The conclusion reached was that cases fatal within six months of notification were not a random sample. Without laying too much stress upon the matter, Dr. Dudfield was inclined to think that patients whose cases terminated fatally within six months of notification were on the whole younger than those who survived six months.

Dr. Dudfield, having pointed out that in 1919–21 the percentage of fatal cases only heard of at death was greater than in 1914–18, passed to a consideration of the changes of incidence and fatality, using index numbers in terms of the records of 1914 as a base. He thought the figures afforded some evidence that work under the scheme had been useful but, in his opinion, the administrative side of the scheme should be tightened up, and to that end notification should be improved. Article V. of the existing regulations ran :—

> Subject to the provisions of the Regulations every Medical Practitioner (unless acting as a School Medical Inspector) attending on or called in to visit any person (whether at an institution or otherwise) shall, within forty-eight hours after first becoming aware that such person is suffering from tuberculosis, make and sign a notification of the case on Form A, and shall transmit the notification to the Medical Officer of Health for the District within which the place of residence is situate at the date of notification. Provided that a Medical Practitioner shall not notify a case of tuberculosis under this Article if he has reasonable grounds for believing that the case has already been notified . . . to the Medical Officer of Health for the district within which the place of residence of the person is situate. Provided further that if a notification is required in pursuance of this Article in respect of an in-patient at an Institution the notification shall be sent to the Medical Officer of Health for the District in which the usual place of residence of the patient is situate.

Dr. Dudfield thought that the first of the two provisos should be repealed, and an addition made requiring the medical practitioner to repeat his notification should the patient move into a new district and the practitioner continue in attendance. Regarding the second proviso, Dr. Dudfield thought that the certificate of notification should be sent to the medical officer of health of the district in which the institution was situated. Dr. Dudfield also thought that "suspect" cases should be notified, the more so as institutional treatment was now available for "suspect" cases for observation. With regard to Article VII., providing for notification by medical officers of Poor-law institutions or sanatoriums of cases admitted and not required to be notified under Article V., and also of discharges other than transfers, Dr. Dudfield thought the provisions should apply to all institutions and to "suspects." He also thought that when the case was first notified on Form C the medical officer of the institution should be required to supply the name and address of the practitioner arranging for the admission of the patient if the medical officer of health desired the information. When a patient was admitted from one district and discharged to another,

the medical officers of health of both districts should be notified. As at present drawn, the Article required the admission to be notified on Form C, even after "transfer," but not the transfer-discharge on Form D, so that there was an incomplete record of institutional treatment and an excess of recorded admissions over discharges and deaths. Dr. Dudfield thought that opportunity of immediate treatment was lost by a refusal of some practitioners to notify until the tubercle bacillus had been demonstrated in the sputum. Lastly, he referred to the difficulty of preparing accurate statistics of prevalence and secular change. The first source of error was the possibility of cases recorded as "primary" in one area being really "secondary" to notification in another area. The second source of error was due to failure to trace removals. The latter might be dealt with by altering the form of certificate, requiring the practitioner to state that he had made inquiry as to previous notification, or by arranging for the district medical officers to forward to the county medical officer a list of cases where there had been removal to an untraced destination.

MANCHESTER PATHOLOGICAL SOCIETY.

A MEETING of this Society was held at the University of Manchester on May 10th, Mr. J. HOWSON RAY, the President, being in the chair.

Dr. LOUIS SAVATARD read a paper on

Multiple Benign Epitheliomata of the Skin.

The speaker reminded his hearers that rather more than 30 years ago, Brooke first described before the Society small tumours of the skin, to which he had given the name "Epithelioma adenoides cysticum," in a paper published in the Society's Transactions, 1891–1892. Fordyce, of New York, was carrying out similar research and communicated his results to the Sixteenth Annual Meeting of the American Dermatological Association in September, 1892. Brooke's and Fordyce's clinical and histological observations were almost identical, and to their masterly descriptions there was to-day little to add. Last summer Dr. Savatard had by chance come across one of Brooke's original cases, and he showed photographs of the condition 30 years ago and now. Dr. Savatard stated that in the multiple variety there was little difficulty in diagnosis and that the uniformity of the lesions readily differentiated them from multiple rodent ulcers. When solitary lesions presented themselves, as in five of his own cases, the clinical diagnosis from a non-pigmented nævus was not possible. When these solitary lesions became ulcerated, as they did in three cases, they stimulated early rodent ulcers or epitheliomas. Some of the lesions showed pigment beneath the epidermis in the "adenoid" masses and fibrous stroma. Many of the cases presented nævi associated with the tumours. The communication was freely illustrated by lantern-slides.

Dr. DAVID ORR and Dr. A. CORSAR STURROCK communicated a paper entitled "The Influence of Disturbance of the Sympathetic Mechanism on the Localisation of Toxi-infective Lesions in the Central Nervous System."

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Miller General Hospital, Greenwich, on May 12th. Dr. C. J. T. Comber, the President, occupied the chair, and delivered the presidential address on his experiences in early years of practice on the Yorkshire moors. He described an operation on a countryman in a barn, when the patient held a candle while the surgeon sawed off his leg. The speaker mentioned a holy stick to which the people attributed miraculous powers of healing, and described the gathering in of herbs at certain seasons, and the drying of them in the doctor's surgery. He showed wooden pill boxes in which doctors carried pills with them on their rounds, an old form of tonsillotome, and an instrument for extracting teeth with a T-shaped handle.

Reviews and Notices of Books.

ARTIFICIAL LIMBS AND AMPUTATION STUMPS.

A Practical Handbook. By E. MUIRHEAD LITTLE, F.R.C.S. Eng., Consulting Surgeon to the Royal National Orthopædic Hospital, &c. London: H. K. Lewis and Co., Ltd. 1922. With 267 illustrations. Pp. 313. 18s.

THE surgical experiences of the war are becoming less acute in our memory. Very little of the knowledge garnered would appear to stand out in bold relief and to influence the routine surgery of civil life. We cannot forget, however, that in connexion with the amputation stump and its attendant artificial limb a vast amount of new information has been accumulated, illuminating some old-established principles and controverting others. In the civil surgery of the future the art of amputation will continue to flourish, and the operation will still, we fear, be regarded as one of the commonplace procedures which all surgeons can attempt and perform efficiently. Amputation is not, however, an end in itself, but forms part of a surgical problem which is rendered complete only by the prescription and fitting of a suitable prosthesis.

We read with renewed interest that 41,300 British soldiers (exclusive of Overseas Forces) lost limbs in the war, and some 25,000 of these passed through the Roehampton Limb-Fitting Hospital. The greater proportion of the latter came under the personal supervision of Mr. Muirhead Little, who has here given the profession an admirable monograph embodying his exceptional experiences. He entered upon this work early in the war already equipped with special experience in the handling of amputées and the prescription of artificial limbs, from many years' association with the Royal Surgical Aid Society. He was amongst the very few who at this period were competent to control and modify the empiricism of the limb-maker. For some time it has been recognised that Mr. Little's work at Roehampton and elsewhere has placed him in a unique position in this or any other country, and the handbook which has now appeared has been eagerly awaited by the surgeons.

In a book of moderate dimensions the author has given a most lucid exposition of a difficult and technical subject. The principles of the inter-relation of the amputation stump and artificial limb, the essential structural anatomy of the various types of prostheses, and the rationale of their mechanism, are all explained in a manner which will appeal not only to the expert, but also to the surgeon who has had few, if any, chances of seeing this type of work. Each of the 21 chapters is a separate entity, but there is no discontinuity in the main theme. We may single out certain sections as particularly happy in conception—viz., Chapters III., IV., and XIV., on kineplastic amputations, on the relation of natural joints to those of prostheses, and on the mechanism of prostheses for the lower limb. The vexed question of the light metal *versus* the wood or leather artificial limb for the lower extremity is dealt with impartially. In this connexion two sage pronouncements may be quoted: "However light the limb may be it will not feel so if it fits badly" (Chapter XVII.), and, "At the time of writing the battle of legs is still raging, and at the moment aluminium seems to be in the ascendant over wood and leather; it must be remembered, however, that the two latter have been exposed to a length and severity of proof to which it has not yet been possible to subject the former" (Preface).

This book is profusely illustrated, a feature which adds considerably to its value where detailed descriptions of intricate mechanisms are given. It will doubtless take its place as the standard text-book on the subject, and should be read and possessed by all surgeons.

A TREATISE ON GLAUCOMA.

Second edition. By ROBERT HENRY ELLIOT, M.D., B.S. Lond., Sc.D. Edin., F.R.C.S. Eng., Lieut.-Colonel, I.M.S. (retired). Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1922. Pp. xxii. + 656. 30*s*.

THE student who is also a bibliophile may, in the future, be a little puzzled by this book; for though the author speaks of it in his preface as a second edition, no first edition of "A Treatise on Glaucoma" will be traceable. The explanation is that a preceding work, entitled "Glaucoma: A Text-book for the Student of Ophthalmology," containing 546 pages and 158 illustrations, by the same author, has grown into the present volume of 656 pages with 215 illustrations. It seems wise to have changed the name; the book is not one for a "student," except in so far as every expert interested in his profession is necessarily a student. We may imagine the discouragement of an undergraduate on being assured (p. 151), that the diagnosis of glaucoma is usually "extremely easy," and then finding himself confronted with a chapter on the diagnosis of glaucoma containing nearly 200 pages. But the expert will find much that is of great value in this volume, which, though the title has been changed, may with justice be regarded as a second edition of the first one.

The first chapter is improved by the full and careful anatomical study of the passage of entrance of the optic nerve together with the lamina cribrosa which bridges it. The chapter on Intraocular Pressure is almost unchanged, except that a new section is appended—as it were as an after-thought—to Part I. on the views of Magitot (*Annales d'Oculist*, 1917), who holds, with Leonard Hill and Henderson, that the eye is to be regarded as a closed space, with a negligible circulation of the aqueous. The mass of additional matter is to be found in Chapter IV. (on the diagnosis of glaucoma). The additions make some 60 pages, and include an account of the subjective sign of haloes round lights, and the means by which the pathological halo of glaucoma can be distinguished from the physiological haloes, or at least by which the haloes due to corneal change can be separated from those due to changes in the lens. Another considerable addition is the section on "Koeppe's sign." This is the deposit on the anterior limiting layer of the iris of fine pigment granules, which find their way into the iris stroma, on to the back of the cornea and presumably into the angle of the anterior chamber; Koeppe claims that this is a prelude to glaucoma; if it is, it must be admitted to be a sign of great importance. The third and chief addition is in the sections on perimetry; in the previous book the description of the author's scotometer, adapted from that of Priestley Smith, and of the fields charted thereby, was relegated to an appendix. The discussion of Bjerrum's, Seidel's, and Colonel Elliot's own sign and their value as evidence of the progress of the disease is of much interest. The brush-like extensions of the scotoma found by examination with the author's scotometer, are very suggestive of the gradual involvement of successive bundles of nerve fibres. In the chapter on secondary glaucoma there is a section on glaucoma following on spontaneous absorption of senile cataract. In the final chapter is the last large addition, in the shape of a description of the histological anatomy of the trephined disc. In discussing the relative methods of the newer operations for glaucoma, Colonel Elliot mentions the frequency of "quiet iritis" after trephining. Lagrange claims for his operation that it is never followed by iritis; it would be interesting to have further information on this point.

We have noted few omissions or errors. There is no mention of Stack's gyroscopic trephine among the mechanical devices for trephining. "Uribe Y. Troncosco" (p. 126) should be Uribe y Troncoso. The only error of any magnitude is the diagram (which appears in both books), Fig. 146, "Iridectomy for glaucoma, showing the line of the keratome incision." To make an incision of such a shape with a keratome would seem to us impossible, unless the point were directed to the centre of the globe throughout; such an incision, with the lateral ends further away from the limbus than the centre, cannot be made with the blade parallel to the plane of the insertion of the cornea. As a whole, the new book well sustains the reputation of its author.

UROLOGY.

The Practice of Urology. Third edition. By CHARLES H. CHETWOOD, M.D., LL.D., F.A.C.S., former Professor of Genito-urinary Surgery, New York Polyclinic; Surgeon to Bellevue Hospital. London: Baillière, Tindall and Cox. 1921. Pp. 830. 42*s*.

THE author in his preface states that he has maintained his attitude of progressive conservatism, and he shows evidence of this in his well-balanced views on some of the modern methods of treatment and diagnosis. It may be an excess of conservatism which leads him to omit all reference to the urea-concentration test of renal function, now being used in this country with the increasing justification of experience, almost to the exclusion of other tests. We look in vain also for definite pronouncement on the limit of phenolsulphonephthalein excretion which proscribes operations upon the urinary tract. Thorium citrate is recommended for pyelography, though the work of D. F. Cameron, which demonstrated the great advantages of sodium iodide or bromide over thorium citrate, was done in America. The recommendation in two places (pp. 46 and 123) of cocaine for anæsthetising the urethra suggests a lack of revision, and we also take exception to the recommendation of carbolic acid injection for infantile hydrocele, at least when this occurs in a child. But these are but small blemishes in an eminently readable book full of sound practical advice obviously the result of experience, as when the author deprecates the routine employment of posterior urethral injections in gonorrhœa, or recommends the open excision of the posterior margin of the vesical orifice in fibrous contraction of the bladder neck. The book is well printed and illustrated, and is certain to maintain the popularity of its former editions.

V. Congresso de la Asociación Española de Urología. Published under the direction of Dr. PEDRO CIFUENTES, Secretary-General. Madrid: Imprenta de Antonio Marzo. Pp. 360.

THIS volume contains the official subjects, communications, and discussions which took place at the Fifth Congress of Urology, with the address of the President, Dr. Barrangan. Dr. J. de Sard, of Paris, opened the discussion on the treatment of wounds of the urinary apparatus, giving a comprehensive account of gunshot wounds of the kidney, the lesions of the parenchyma produced by them, the symptomatology, complications, diagnosis, and treatment, reference being made to work in other countries, notably to that of Sir Cuthbert Wallace. Wounds of the ureter, bladder, and urethra were also discussed at length. Dr. Perez Grande and Mr. F. C. Chicote gave their personal experience of the treatment of gonococcal infections by means of diathermy. The subject of early and late sequelæ of nephrectomy was introduced at the second session by Dr. E. Alcina, of Cadiz, in a paper of considerable practical interest. An elaborate paper on the investigation of renal function by Dr. Camiña discussed at length Albarran's test and Ambard's constant and the injection of methylene-blue and sulphophthalein, and related some interesting facts on employment of these methods in a case of supplementary kidney. The subject of prostatectomy was introduced by Dr. Oreja, of San Sebastian, who advocated preliminary cystotomy under local anæsthesia and subsequent prostatectomy after repeated examinations of the blood-urea. In the discussion which followed Dr. Mollà stated that in his own practice he found no difference in the mortality between the results of operation in a single or in two

stages. Dr. Cifuentes drew attention to the danger of general anæsthesia when there was renal insufficiency, and said that many subjects of advanced age with perhaps renal and cardio-pulmonary lesions tolerated the operation better when performed in two stages. Hypogastric cystoscopy with prism was advocated by Dr. Camiña, who claims for it many advantages over urethral cystoscopy both as a diagnostic measure before prostatectomy and also after operation to ascertain the exact result attained and for localising hæmorrhages. There were many other interesting papers, among which we may mention vesical syphilis by Dr. Cifuentes and pyuria of extra-urinary origin, by Dr. Mollà. We note that the Sixth Congress will be held in Madrid in October, 1922, and that the official subjects for discussion will be hypogastric cystoscopy and indications for operation in reno-ureteral lithiasis.

MIDWIFERY.

Manual of Midwifery. Fifth edition. By W. E. FOTHERGILL, M.A., B.Sc., M.D., Professor of Obstetrics and Gynæcology, Victoria University of Manchester. Edinburgh: W. Green and Co. 1922. With double coloured plate, and 103 illustrations in the text. Pp. 488. 10*s*.

A BOOK which has reached its fifth edition, especially at the present time when the reader has so wide a choice of text-books on midwifery, needs but little further commendation.

As Prof. Fothergill points out in his preface, during the last few years the changes in the science and art of midwifery, as practised and taught by the older generation of obstetricians, have been but few. Indeed, what change there has been may not survive the test of time. The large part now played by abdominal operations in the practice of midwifery as contrasted with vaginal procedures, is one of the changes of doubtful benefit. As Prof. Fothergill says, the spread of Cæsarean section has been accompanied by some loss of interest in the abnormalities of the bony pelvis, the mechanisms characteristic of them, and the "obstetric" methods of dealing with them, and he well might have added a considerable diminution in the experience necessary to carry out these obstetric procedures. Students and practitioners who read this book, however, will have no reason for indulging unduly in the practice of Cæsarean section as an easy method of escaping most of the difficulties of obstetric practice, for on this point, as on most others, the teaching is sound and good. The whole book, founded as it is on the teaching of the Edinburgh school, may be safely taken as a reliable guide to both the student and the practitioner in the practice of midwifery. The revision in this new edition has been carefully and thoroughly carried out.

A Short Practice of Midwifery for Nurses, embodying the Treatment adopted in the Rotunda Hospital, Dublin. Sixth edition, revised. By HENRY JELLETT, B.A., M.D., F.R.C.P.I., Gynæcological Surgeon, Canterbury Hospital, New Zealand, late Master Rotunda Hospital, &c. London: J. and A. Churchill. 1922. With 6 plates and 172 illustrations in the text, also an Appendix, a Glossary of Medical Terms, and the Regulations of the Central Midwives Board. Pp. 427. 9*s*.

HERE again we have a long-tried and old-established favourite. A book which has reached its sixth edition, and of which 24,000 copies have been printed, may well be thought to be exempt from criticism, and in this case the success is not surprising. It contains all that a nurse should know, put clearly and succinctly; it is profusely and well illustrated, and great care has been taken to adapt the contents for the use of those for whom it is written. The present edition has been carefully revised and some additions have been made. If it be objected that the treatment of the subject is a little too full, it may be answered that a nurse should know what should be done in any given case, although it may not be her duty to do it. In this way only can she take an intelligent interest in her patients and train herself to give intelligent aid to the medical man with whom she may be working. The book is a very good one and we can heartily recommend it.

NEOPLASTIC DISEASES.

A Treatise on Tumours. Second edition. By JAMES EWING, A.M., M.D., Sc.D., Professor of Pathology at Cornell University Medical School, N.Y. London and Philadelphia: W. B. Saunders Company, Ltd. 1922. Pp. 1054. 55*s*.

THE author has taken the opportunity provided by the early call for the reprinting of this work to revise it as a whole, and to make extensive alterations in certain sections, chiefly those dealing with neurofibromatosis and the tumours of bones. Progress in the field of experimental cancer research has been noted, and the genesis of the work on "irritation cancer," which is likely to prove of the greatest importance in the future, is set forth in some detail.

We expressed our favourable opinion of Prof. Ewing's treatise on its publication in 1919, and the fact that a new edition of such an elaborate work should have been called for in the short space of three years bears out the high opinions we then formed of it. It is indeed a most able and exhaustive presentation of the subject, and the pathologist and the clinician, determined to be conversant with the latest knowledge as well as theories, will find it so.

JOURNALS.

QUARTERLY JOURNAL OF MEDICINE.—The April number contains articles by the following authors:—Francis R. Fraser, J. P. Ross, and N. B. Dreyer: The Reaction of the Blood in Relation to Dyspnœa. The reaction of arterial blood was determined by the colorimetric method by dialysis of Dale and Lovatt Evans. The blood obtained by arterial puncture was examined in eleven normal male adults, in nine patients suffering from severe circulatory failure, and in seven cases of severe renal disease. It was found that the average reaction of arterial blood in healthy young adults was pH = 7·68. In valvular disease with heart failure the blood is more alkaline. It was shown that dyspnœa may occur with alkalæmia, as well as with acidæmia, and further, that pronounced acidæmia may exist without dyspnœa.—S. C. Dyke: An Enquiry into the More Remote Prognosis in War Nephritis. The author has followed up the after-history of 100 cases of war nephritis, personal observation commencing within a few days of the onset; 65 per cent. returned to duty, 32 per cent. were discharged as unfit, and 3 per cent. subsequently died. Subsequent records obtained from the Ministry of Pensions showed that the expectation of life of pensioners for war nephritis is less than half that of other pensioners, a large proportion of them (8·9 per cent.) dying from pulmonary tuberculosis. It appears that 70 per cent. of cases of this disease make a complete recovery within 12 months of the onset, and further, that an initial uræmia does not influence the later prognosis unfavourably.—J. W. McNee: Syphilis of the Stomach. This paper opens with a résumé of the literature on the subject, and then proceeds to a detailed account of a case of syphilis of the stomach. It belonged to the commonest variety of gastric syphilis, the submucous gumma. On section spirochætes were found by Levaditi's silver method of staining in large numbers, penetrating the actively growing granulomatous tissue. The macroscopical and microscopical appearances of the stomach are illustrated by five excellent plates.—Geoffry C. Linder: The Excretion of Potassium Iodide in the Urine in Health and Disease: its Use as a Test of Renal Function. The author found that in normal individuals the excretion of potassium iodide after a test dose of 2 gr. was constant with small variations over long periods, and was not affected by fluid intake or urine output. From experiments made upon patients with renal disease of various types it was shown that the excretion of iodide falls below 35

per cent. and that a figure of 15 per cent. or less indicates advanced renal disease and often foretells early death. In other diseases tested the iodide excretion is more than 35 per cent. This method may be used as a test of renal function, and in some cases may be the only one that shows kidney disease.—**N. Hamilton Fairley**: Researches on the Complement-Fixation Reaction in Hydatid Disease. During the last ten years 260 cases of hydatid disease were admitted to the Melbourne Hospital, and of these 17·7 per cent. died. As the result of extended observations upon the complement-fixation test in echinococcosis by the author many interesting results were obtained. The antigen used was hydatid fluid containing scolices obtained from cysts from sheep. Cysts devoid of scolices were found to be lacking in antigenic properties. Uncomplicated cysts gave a positive reaction in 75·6 per cent. of cases, whilst those which had recently ruptured or suppurated were positive in 91·7 and 100 per cent. respectively. In a large series of control cases the result was invariably negative. It is claimed that a more universal application of this test in suspected hydatid disease would result in an appreciable lowering of the operation mortality.

ARCHIVES OF MEDICAL HYDROLOGY. No. 1. May, 1922.—At a meeting held at the Royal Society of Medicine last December it was decided to found an international society of hydrology. Dr. Fortescue Fox was chosen president, and representatives of Austria, Belgium, Czecho-Slovakia, France, Great Britain, Holland, India, Italy, Japan, New Zealand, Norway, Spain, Switzerland, and the United States of America were asked to collate and present to the new society, by means of an international journal, the clinical and experimental work in the various countries which bore on the medical actions and uses of waters and baths. The first issue of this journal has now been published and the contents, which are for the most part in English with either a full translation or résumé of the text in French, are well edited and should promote the desired objects. The journal opens with a sympathetic preface from Sir Clifford Allbutt, while Dr. Carnot, professor of therapeutics in the Faculty of Medicine of Paris, adds a foreword in expression of the idea of internationalism in medicine, concluding felicitously as follows: "Apprenons donc, les uns par les autres, ce qui, dans chaque pays, contribue à soulager les maux de l'humanité; car c'est la lutte commune contre la misère, la maladie et la mort qui peut le mieux unir les peuples et faire s'aimer les hommes." Reports are published on the present state of medical hydrology on the continent, in America, and in this country, from which the extent of the practice (over half a million invalids are annually referred for treatment by waters and baths in these countries), as well as the paucity of scientific research and systematic teaching, are made evident. There are also original papers by Prof. Leonard Hill on Some Physiological Effects of Exposure to Open Air and Water Baths, by Dr. Alois Strasser (Vienna) on the Scientific Foundations of Hydrotherapeutics, by Dr. R. Wybauw (Spa, Belgium) on the Treatment of Circulatory Trouble by Natural Effervescent Baths, by Prof. Allyre Chassevant (Algiers) and Dr. Paul Ferreyrolles (Medical Consultant, La Bourboule) on How to Study a Mineral Water at the Present Time, by Dr. William Bain on the Physiological Investigation of a Medicinal Water, and by Dr. Gustav Monod (Vichy) on Stations Thermales et Traitement Moderne du Diabète. Mr. S. Judd Lewis, D.Sc., contributes an article on Modern Spectroscopy in the Study of Natural Waters. An appreciation of the work of three pioneers in hydrotherapy, Wilhelm Winternitz, Felix Garrigou, and Simon Baruch, are also among the contents of a journal which, while adding to our knowledge, may also form a valuable link between medical men practising in different parts of the world. The subscription is 10*s.* 6*d.* per annum, and the publishers are Messrs. Headley Bros., 18, Devonshire-street, E.C.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, MAY 23RD.

UPON the conclusion of the President's address, of which an abstract was given in THE LANCET last week, the Council received and adopted an edition of the Standing Orders revised by the Executive Committee as directed in November, 1921. The election of committees followed, and the Council then received and approved the report of the Finance Committee.

Restoration to the Register.

The Council having deliberated in camerâ, the CHAIRMAN announced that the Registrar had been directed to restore to the Medical Register the name of Bertie Cecil Eskell.

Penal Cases.

After the election of two more committees, the Council proceeded with the consideration of penal cases.

The Case of Edwin Ernest Willis.—The Council considered the case of Edwin Ernest Willis, registered as of 1, Council Houses, New Herrington, Co. Durham, L.R.C.P. Edin., 1895; L.R.C.S. Edin., 1895; L.F.P.S. Glasg., 1895, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you were, at the Durham Assizes held on Feb. 27th, 1922, convicted (in the name of Edward Ernest Willis) of the following felony—namely, of unlawfully killing one Eleanor Hannah Davison and sentenced to 12 months' imprisonment in the second division.

Mr. Willis did not attend in answer to his notice, nor was he represented by counsel or solicitor. The Council's solicitor, in the absence of a complainant, placed the facts before the Council. He put in a copy of the certificate of conviction, and read extracts from a letter from Mr. Willis in reply to his notice. He also read a letter from the chaplain of Durham Prison on behalf of Mr. Willis.

The Council deliberated on the case in camerâ, after which the President announced the decision as follows:—

I have to announce that Edwin Ernest Willis, having been proved to have been convicted of the felony alleged against him in the notice of inquiry, the Registrar has been directed to erase from the Register the name of Edwin Ernest Willis.

The Case of Frederick Percy Richard Gover.—The Council proceeded to the consideration, adjourned from May 24th, 1921[1] of the case of Frederick Percy Richard Gover, registered as c/o Gover and Co., 13, Old Jewry Chambers, E.C.2, L.R.C.P. Edin., L.R.C.S. Edin., L.R.F.P.S. Glasg., 1910, who appeared before the Council on charges relating to various convictions in 1916, 1917, and 1920 of being drunk in charge of a motor-car, of driving recklessly and in a dangerous manner, and of having caused bodily harm to one Mary Ann King by wilful misconduct or negligence whilst having charge of a motor-car. (In no case was Mr. Gover professionally engaged when the offences were committed.) At the conclusion of the case the President had announced the decision of the Council to the effect that the convictions alleged had been proved to the satisfaction of the Council, but that the Council postponed judgment until the May Session, 1922. Before that date Mr. Gover would be called upon to supply to the Registrar of the Council names of some of his professional brethren who would be willing to testify as to his character and conduct in the interval. On invitation from the chair Mr. Gover then renewed his solemn undertaking to refrain from drink for the rest of his life.

Mr. F. P. R. Gover attended in answer to his notice, accompanied by Mr. Gover, of Gover and Co., his solicitor. In the absence of a complainant the Council's solicitor placed the facts before the Council. He put in a communication from the Ministry of Health and two letters from Mr. William Gordon Donald, M.B., C.M., of 67, Hoe-street, Walthamstow, which he read. Mr. Gover then addressed the Council on behalf of his client. Mr. F. P. R. Gover answered questions put to him from the chair, by members of the Council through the chair, and by the Legal Assessor. The Council then deliberated on the case in camerâ; the decision was announced by the President as follows:—

I have to announce to you that the Council do not see fit to direct the Registrar to erase your name from the Medical Register.

The Case of William Joseph Ryan.—The Council considered the case of William Joseph Ryan, registered as of the Overseas

[1] THE LANCET, 1921, i., 1200.

Club, Aldwych, London, W.C., L.R.C.S. Edin., 1888; L.F.P.S. Glasg., 1888, who had been summoned to appear before the Council on the following charge :—

That, being a registered medical practitioner, you were convicted of the following misdemeanours—viz.: (1) On Jan. 11th, 1918, at the Tower Bridge police-court, of being drunk and fined 10*s.* or six days' imprisonment; (2) on March 6th, 1919, at the Tower Bridge police-court, of being drunk and fined 5*s.*; and (3) on Oct. 7th, 1921, at the Bow-street police-court, of being drunk and riotous and fined 29*s.* 6*d.* and 10*s.* 6*d.* costs or 21 days' imprisonment.

Mr. Ryan attended in answer to his notice, unaccompanied by counsel or solicitor. In the absence of a complainant the Council's solicitor placed the facts before the Council, put in the certificates of the convictions set out in the present notice, and called the Council's attention to proceedings against Mr. Ryan in 1916, when the Council considered four previous convictions. He read a letter from Mr. Ryan in answer to his notice, in which he undertook to abstain from intoxicants in future. Mr. Ryan then addressed the Council on his own behalf, and answered questions put to him from and through the chair. The Council deliberated on the case in camerâ; the President afterwards announced the decision as follows :—

I have to tell you that the convictions alleged against you in the notice have been proved to the satisfaction of the Council. These convictions and those previously recorded against you indicate a habit which is not only discreditable to your profession but may become dangerous to your patients. In order to give you an opportunity of reconsidering your habit in this matter, and in order to enable you to show that you have adhered to your pledge to abstain from drink in future, the Council has postponed judgment on the convictions proved against you till the May Session, 1923. Before that date you will be required to send to the Registrar of the Council the names of some of your professional brethren who may be willing, upon written application from the Registrar, to testify by letter, addressed to him for the use of the Council, as to your character and conduct in the interval, and in particular in regard to your habits in the matter of drink. You will receive in due course a formal written intimation of what I have just announced to you, and the intimation will specify the date to which I have referred, when you should be present, and should understand that in the event of any further conviction for a similar offence the Council may instruct the Registrar to erase your name from the Medical Register.

The Case of Richard William Starkie.—The Council considered the case of Richard William Starkie, registered as of 27, Oakley-square, London, N.W., M.R.C.S. Eng., 1910; L.R.C.P. Lond., 1910, who had been summoned to appear before the Council on the following charge :—

That, being a registered medical practitioner, you were at the general session holden at the Central Criminal Court on Sept. 6th, 1921, convicted of the following felony—viz., that you unlawfully administered and caused to be taken by Ivy Ellen Peterson certain poisons and noxious things—to wit, ergot, aloes, and oil of savin—with intent to procure her miscarriage, and were ordered to be imprisoned without hard labour in Wormwood Scrubbs Prison for nine months, which conviction was affirmed on your appeal to the Court of Criminal Appeal.

Mr. Starkie attended in answer to his notice, accompanied by Sir Edward Marshall Hall, K.C., with him Mr. Norman Birkett, his counsel, instructed by Messrs. Bevan and Company, his solicitors. In the absence of a complainant the Council's solicitor put in the certificate of conviction and stated that he had very recently received from Mr. Starkie's solicitors a large number of statutory declarations, and that he desired a ruling as to whether they were admissible. Sir E. Marshall Hall stated that they were sent in on his instruction, as he did not desire that any evidence which might otherwise be admissible should be excluded merely on account of a technicality. He did not now seek to put these declarations in if he might call witnesses as to character. The President informed Sir E. Marshall Hall that evidence as to character was admissible. Sir E. Marshall Hall called Mrs. Emma Briggs, newsagent, as a witness. She was examined by Mr. Birkett as to a petition to the Council which had lain for signature in her shop, and to which 5000 signatures were appended. Mrs. Briggs was cross-examined by the Council's solicitor, answered questions put to her from the chair, and was re-examined by Sir E. Marshall Hall. Mr. Birkett next called Charles Hunter, clerk in Holy Orders, M.A., and Mr. Thomas Oakley, of the Hearts of Oak Benefit Society, chairman of the St. Pancras board of guardians, and examined them as witnesses to character. These witnesses spoke highly of Mr. Starkie's treatment of the poor, and of his conduct during air-raids in the war. The Council's solicitor did not desire to cross-examine the witnesses. Sir E. Marshall Hall then called Mr. Starkie, and examined him as a witness on his own behalf. Mr. Starkie was cross-examined by the Council's solicitor. He answered questions put to him from the chair, by the Legal Assessor, and by members of the Council through the chair, and was re-examined by Sir E. Marshall Hall. Sir E. Marshall Hall then addressed the Council on behalf of Mr. Starkie. He asked the Council to be merciful, and instanced cases where medical men punished by the law had not been further punished by the removal of their names from the Register. Mr. Starkie, he said, had endeared himself to the poor. He had made a disastrous mistake, a mistake unjustifiable whether the pills he administered did in fact procure abortion or not. But had the pills been made of bread, and given with intent to procure abortion, he would still have been guilty. Yet it would make for dishonesty to erase Mr. Starkie's name from the Register; such action might drive him to exercise his skill in the byways of illicit practice.

The Council's solicitor addressed the Council in reply, emphasising the point that there appeared to be "two Dr. Starkies," one in Oakley-square, St. Pancras, and one in Brook-street, Mayfair. There was no evidence of character from the Brook-street patients, however distinguished might be some of the names found amongst them.

The Council deliberated on the case in camerâ, after which the President announced the judgment.

The decision of the Council is as follows :—That Richard William Starkie, having been proved to have been convicted of the felony alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the Medical Register.

The Case of William Young.—The Council considered the case of William Young, registered as of Inverdeen, Usworth, Durham, M.B., Ch.B., 1902, U.Edin., who had been summoned to appear before the Council on the following charge :—

That being a registered medical practitioner you were convicted of the following misdemeanours—viz., At Gateshead (Borough) police-court: (1) On March 16th, 1921, of being drunk whilst in charge of a motor-car and fined 40*s.* or one month's imprisonment, your licence to be endorsed; (2) On March 16th, 1921, of failing to produce licence when demanded by a police constable and fined 20*s.* or 14 days' imprisonment; (3) On Oct. 5th, 1921, of driving a motor-car in a manner which was dangerous to the public, having regard to all the circumstances of the case, and fined £5 and £9 5*s.* witnesses' costs and your licence was endorsed; (4) On Feb. 6th, 1922, of being drunk whilst in charge of a motor-car and fined 40*s.* and £1 5*s.* 6*d.* costs, your licence was suspended until March 31st, 1922, and declaration made that you should not hold a licence for a period of 12 months from March 31st, 1922; (5) On Feb. 6th, 1922, of failing to produce motor-driving licence and fined 20*s.* or 14 days' imprisonment. At Gateshead (County) police-court: (6) On May 26th, 1921, of being drunk whilst in charge of a motor-car and fined 40*s.* or 14 days' imprisonment.

Mr. Young did not attend in answer to his notice, nor was he represented by counsel or solicitor. The Registrar having read the notice, in the absence of a complainant the Council's solicitor laid the facts before the Council, and put in the certificates of conviction; he read a letter sent by Mr. Young in answer to his notice, also a letter from the chief constable of the Gateshead district.

The Council deliberated on the case in camerâ, after which the President announced the decision as follows :—

I have to announce that in the case of William Young the Council has found that the convictions alleged against him in the notice of inquiry have been proved, and that judgment has been postponed till the session in November, 1922, when Mr. Young would be required to attend in person to hear its decision in the case.

The Council then adjourned.

WEDNESDAY, MAY 24TH.

The Council proceeded with the consideration of penal cases.

The Case of Robert Bell.—The Council considered the case of Robert Bell, registered as of 15, Half Moon-street, Mayfair, London, W. 1, M.B., 1868, M.D., 1871, Glas., L.R.C.S., Edin., 1868, F.R.F.P.S., Glas., 1872, who had been summoned to appear before the Council on the following charge :—

That being a registered medical practitioner, you have, during a period of nine months, prescribed for and treated a patient, namely Mrs. Rose Hindley, who was suffering from "inoperable" cancer, without ever having seen or examined the said patient, such prescribing and treatment being carried on by means of correspondence sent by you to Edward Hindley, the husband of the said patient, a person without medical skill or knowledge. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The attention of the Council had been called to this case by a committee of Warrington practitioners.

Dr. Bell attended in answer to his notice, accompanied by Mr. W. de B. Herbert, counsel, instructed by Mr. W. H. Herbert, his solicitor. The Registrar having read the notice, in the absence of a legal representative of the committee of Warrington practitioners, the Council's solicitor laid the facts of the case before them. He read letters from Dr. Bell to Mr. Hindley and the prescriptions given by him, and letters which had passed between Dr. Bell and the Registrar leading up to a libel action against the Council and its Registrar instituted by Dr. Bell, but later withdrawn. He called Mr. Edward Hindley as a witness, and applied for the draft or copy of a letter, dated June 26th, 1920, alleged to have been written by Dr. Bell to Mr. Hindley, the receipt of which Mr. Hindley denied. This letter was alleged to have contained a request for a report from Mrs. Hindley's medical attendant. It was further alleged that in reply to this letter Mr. Hindley wrote stating that Dr. Ogilvie, who attended Mrs. Hindley, refused to coöperate with Dr. Bell. What purported to be a manuscript copy of Dr. Bell's letter was handed to the Council's solicitor by Dr. Bell's legal advisers. Mr. Hindley was cross-examined by Mr. Herbert and re-examined by the Council's solicitor.

The Council's solicitor then called as witnesses Dr. Ian Ogilvie and Dr. Arthur Anderson, members of the committee of Warrington practitioners, and Dr. John Sinclair Manson, convener of the said committee.

Mr. Herbert opened the case for Dr. Robert Bell and called him as a witness on his own behalf. Mr. Herbert questioned him as to the copy of his letter of June 26th to Mr. Hindley, which Mr. Herbert desired to put in. The Legal Assessor ruled that, in the absence of proof that the letter was sent and seeing that Mr. Hindley denied that he had received it, the copy was inadmissible. Dr. Bell, in answer to a further question, stated that he had written the copy of the letter from memory two days after he had written the original. Dr. Bell was cross-examined by the Council's solicitor and re-examined by Mr. Herbert; he also answered questions put to him, through the chair by members of the Council, and by the Legal Assessor. Mr. Herbert called Lord Tenterden, chairman of the Battersea General (Anti-Vivisection) Hospital, and examined him as a witness to Dr. Bell's character. Lord Tenterden was cross-examined and answered questions. Mr. Herbert then addressed the Council on behalf of Dr. Bell.

The Council then deliberated on the case in camera, after which the President announced its decision as follows:—

Dr. Bell: I have to tell you that the facts alleged against you in the notice have been proved to the satisfaction of the Council. It was open to the Council, having regard to the facts so proved, to have judged you to have been guilty of infamous conduct in a professional respect, but, in the circumstances of the case, they have postponed pronouncing this judgment until next year in order that they may then have an opportunity of considering your conduct in the interval and of taking that conduct into account. I am instructed by the Council to say that they take a grave view of the conduct of a practitioner who for gain prescribes for and treats by correspondence, without ever having seen or examined the patient, without having had any medical evidence as to the actual nature of her complaint, and without securing any medical assistance or coöperation in the actual treatment of it. At the May session, 1923, you should be prepared to satisfy, the Council that during the interval you have been without reproach in respect of such methods of practice as have been proved against you to-day.

The President, on behalf of the Council, thanked the Warrington practitioners who had called attention to the case.

The Case of John William Kynaston.—The Council considered the case of John William Kynaston, registered as of 26, Welbeck-street, Cavendish-square, London, W., L.S.A. Lond., 1885, M.R.C.S. Eng., 1885, L.R.C.P. Lond., 1888, who had been summoned to appear before the Council on the following charge:—

That, being a registered medical practitioner, you have sought to attract to yourself patients for your own gain by means of the following advertising, viz.:—

(1) A book written and published by you entitled "Adenoids and Enlarged Tonsils: Curable without Operation," containing your name, professional address, qualifications, and portrait, and particulars of cases treated by you, and in which is inserted a printed slip inviting persons to send to you an account of their symptoms.

(2) A letter, over your name and professional address, published in the *Bournemouth Daily Echo* of Feb. 11th, 1922, in which you state that you are prepared to give advice by post to all applicants, and asking for financial assistance to start a clinic in London.

(3) An account of an interview between you and a representative of the *Daily Herald*, published, with your photograph in that paper on April 13th, 1922.

(4) An advertisement in *John Bull* of April 22nd, 1922, of the Kynaston Institute, containing your name as Medical Director thereof, and offering your free advice to sufferers; and that in relation thereto you have been guilty of infamous conduct in a professional respect.

Dr. Kynaston attended in answer to his notice; he was not accompanied by counsel or solicitor. The Medical Defence Union, the complainants, were represented by Mr. Oswald Hempson, of Messrs. Hempsons, their solicitors.

Mr. Hempson opened his case, stating that the Council of the Medical Defence Union had for some time looked askance at the growing practice among medical men of airing their views in the lay press. Dr. Kynaston's book was obviously addressed to the lay public; particular objection was taken to the printed slip which appeared in the second edition. The Council were not sure whether Dr. Kynaston's ulterior motive was the benefit of the public or his own pecuniary advantage.

Mr. Hempson having concluded the opening part of his address, the Council adjourned.

THURSDAY, MAY 25TH.

The Council continued its consideration of the case of John William Kynaston.

Mr. Hempson, solicitor to the Medical Defence Union, resumed his statement of the case for the complainants. He read various publications issued by the Kynaston Institute, and called as witnesses Dr. James Neal, general secretary to the Medical Defence Union, and Mr. Frederick D. Whitwell, a clerk in the employment of his (Mr. Hempson's) firm. He examined these witnesses, who were then cross-examined by Dr. Kynaston. Mr. Hempson then called Mr. Albert E. Bright, also a clerk in the employment of his firm, and examined him. This completed the case for the complainants.

Dr. Kynaston then tendered himself as a witness on his own behalf and gave evidence. He also answered questions put to him by the chair, and was cross-examined by Mr. Hempson regarding a proprietary remedy named "Haline," the production of the Mercer Ward Co., of which he was a director and shareholder, which remedy he recommended in his book. He was also cross-examined in regard to his connexion with the Kynaston Institute. Dr. Kynaston then gave further evidence in regard to matters on which he had been cross-examined, and addressed the Council in his own behalf. He denied that there was any intention of advertising in the book and articles cited. It had all been part of a campaign that he had undertaken, in the belief that 90 per cent. of cases of enlarged tonsils could be cured without surgery. He had approached the Ministry of Health in order to get an investigation into his method of curing enlarged tonsils, but could get no help; nor did an appeal to the medical profession produce any better results. He had himself, two months ago, sent in an application to be struck off the Medical Register, and contended that only some days after he had made this application was this inquiry set on foot. He characterised the case as a trade-union prosecution by a trade protection society, and claimed that the treatment of adenoids as at present carried on was a vested interest held by certain members of the medical profession.

Mr. Hempson addressed the Council in reply, stating that Dr. Kynaston was seeking a position where he could not be penalised, but that this formed as clear a case of advertising as had ever come before the Council. This closed the case.

The Council then deliberated on the case in camerâ, after which the President announced its decision as follows:—

John William Kynaston, I have to inform you that the Council have found the fact alleged against you in the notice of inquiry to have been proved; that they have judged you to have been guilty of infamous conduct in a professional respect; and have directed the Registrar to erase your name from the Medical Register.

A Case of Fraudulent or Incorrect Registration.

The Council considered a report by the Executive Committee concerning Joseph Ulric Geoffrion, M.D. Laval, registered on the Colonial List in May, 1920, who was ascertained to have had his licence to practise withdrawn in 1908, no other having been issued to him. On motion from the chair it was resolved:—

That in pursuance of the powers of the Council under the Medical Act, 1858, Section 26, the Registrar be instructed to remove from the Medical Register the name of Joseph Ulric Geoffrion, the entry thereof having been fraudulently or incorrectly made.

Appointment of Committees.

The Council proceeded to adopt the nominations of the Branch Councils for the Education, Examination, and Public Health Committees.

Preliminary Examinations.

The report of the Education Committee on the Preliminary Examinations was received, entered on the minutes, and approved.

Medical Curriculum.

The report by the Education Committee on the revision of the curriculum in medicine, with its appendices, was received and entered on the minutes.

Dr. NORMAN WALKER (Chairman of the Education Committee) moved, and Sir NORMAN MOORE seconded, the motion that Recommendation I. in the report of the Education Committee be adopted, viz. :—

I. That the resolutions of the General Medical Council in regard to Professional Education, as revised in December, 1919, be withdrawn on Jan. 1st, 1923, and that the resolutions as detailed in the "Draft Curriculum" be substituted for them on that date.

There was considerable discussion with reference to pre-registration examinations in chemistry and physics. It was set forth in the draft curriculum prepared by the Education Committee that "before registration as a student or commencement of the regular medical curriculum every person shall be required to pass, in addition to an approved examination in general education, an examination or examinations, conducted or approved by one of the licensing bodies," in physics and chemistry. Mr. WARING moved an alteration and addition of words so that the clause should read "before registration . . . every person shall be required to pass an approved examination in general education, *and also, after having attended an approved course of instruction, to pass* an examination or examinations," &c.

Several members of the Council supported the amendment, and others opposed it. The adjournment of the debate was moved by Dr. GRIFFITH, and the Council adjourned.

FRIDAY, MAY 26TH.

The Council resumed the debate on pre-registration examinations. Dr. GRIFFITH felt that the Council's intentions required to be made more explicit than was suggested by the clause in question.

Sir SYDNEY RUSSELL-WELLS stated that in his opinion the course must be approved by the examining bodies, not by the Council. Science teaching in the recognised schools was at present in a state of flux, and many schools would be prevented from raising their teaching to the necessary standard if the amendment was carried.

Sir G. NEWMAN suggested that as a practical proposition it would be a formidable thing for 22 medical schools to attempt to check the courses given at a very large number of the 7200 secondary schools.

The PRESIDENT thought that Mr. Waring's amendment was almost ultra vires. The Council had to deal with the medical curriculum; it could not claim authority over courses not given in medical schools or to medical students.

Mr. WARING thought that the Council would be doing a very unwise thing if it did not lay down the law that the students must attend approved courses.

Sir GILBERT BARLING pointed out that if there was a difficulty in approving courses, there would equally be a difficulty in visiting examinations, which was the alternative.

Dr. NORMAN WALKER deprecated too much stress upon chemistry and physics after the student's registration which might interfere with the clinical part of his work.—Sir JOHN MOORE urged the same point.—Sir A. CHANCE expressed admiration for the elasticity of the report, which put the licensing bodies on their honour to do the right thing.

Mr. Waring's amendment was lost by a small majority.

Dr. BOLAM moved that the date on which the recommendation should come into force should be Jan. 1st, 1924, and Sir JOHN MOORE seconded.—The PRESIDENT said that this could not apply to all the curriculum, because notice had already been given to the licensing bodies of the change to take place from Jan. 1st, 1923.

Dr. BOLAM said that the University with which he was connected had made inquiries of other institutions in the north, and found that several of them were unprepared for the change.—Sir JOHN MOORE stated that there were no arrangements at present for the required education in chemistry and physics, and it would take some time for the Colleges to determine how the education was to be given. He also pointed out that many medical students began their courses in the summer session, and came up for their preliminary examinations in April; this arrangement would bear hardly upon these.—Sir JENNER VERRALL supported, and pointed out that there was another reason for postponement. The recent vote had shown that there was a sharp division in the Council, and if there was a postponement it would be an approach towards Mr. Waring's proposal.

The PRESIDENT said that certain bodies had made arrangements to fall in with the Council's requirements on Jan. 1st next. The amendment was lost by a large majority.

Recommendation I. was then carried unanimously.

Dr. MACKAY moved Recommendation II., and after a conversational discussion over points in drafting, the paragraphs were agreed to in the following form :—

The Committee recommends :—

1. That the resolutions of the General Medical Council in regard to professional education, as revised in December, 1919, be withdrawn on Jan. 1st, 1923, and that the recommendations as detailed in the "Draft Curriculum" be substituted for them on that date.

2. That the following additional recommendations be added to those of the "Draft Curriculum" referred to above : (*a*) That the curriculum should be so arranged that a minimum period of three years shall in every case be available for study after the completion by the student of the professional examinations in anatomy and physiology at the close of the second year; (*b*) that each licensing body should make adequate arrangements for the effective correlation of the several subjects of study throughout its curriculum; (*c*) that the curriculum should be so framed as to afford sufficient opportunities for the study during the last three years of the course of physics, chemistry, biology, anatomy, and physiology in their practical applications to medicine, surgery, and midwifery and that the student's knowledge of the application of these subjects should be subject to test in the final examination; (*d*) that before the student is admitted to his clinical appointments he should have received practical instruction in clinical methods and in the recognition and interpretation of physical signs; (*e*) that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine; (*f*) that the teaching of anatomy and physiology should include as a regular part of the courses the demonstration on the living human body of structure and function; (*g*) that instruction should be given, in the courses of forensic medicine and public health or otherwise, on the duties which devolve upon practitioners in their relation to the State, and on the generally recognised rules of medical ethics. Attention should be called to all notices on these subjects issued by the General Medical Council.

It was later agreed that (*e*) should be placed first, (*b*) second, and (*f*) third, the remaining paragraphs following in the present order.

The PRESIDENT congratulated the committee on the completion of its task, and expressed the thanks of the Council to all concerned, especially the non-members of the Council who served on the Curriculum Sub-committees.

The reports of the Pharmacopœia and Students' Registration Committees were adopted without discussion.

The Council then adjourned.

THE LANCET.

LONDON: SATURDAY, JUNE 3, 1922.

Hospital Finance.

NEARLY all in this country are agreed that the voluntary hospital system is worth saving. It appears to offer an unrivalled field for putting professional and administrative gifts at the service of the community. Hospital physicians, nurses, attendants, clerks, treasurers may not exactly be missionaries or wish to pose as such; nevertheless, to work in any of these capacities does as a matter of experience produce a serviceable spirit, and it is rare in hospital life to find self-seeking on a commercial scale, slip-shod work, or restriction of output to an arranged level. Recent changes in the direction of shortening working hours may have been due in part to pressure from without, but were in essence largely a product of the increasing standard of skill and efficiency within the hospital, a standard which is self-imposed and not dictated by competitive needs. But while worth saving, the voluntary hospital system was felt by many gloomy persons in the last few years to be doomed. Year by year treasurers brought in balance-sheets which would have resulted in compulsory liquidation in any other sphere of life, and there seemed little hope of reducing expenditure without closing down beds, or of increasing income except by calling in the aid of taxes or rates, and thereby coming under another kind of regimen. One great general hospital in the north is, we understand, still overdrawing its account at the bankers at the rate of £70 a day with the intention of making good by an intensive begging campaign when the overdraft becomes excessive. Now, however, the prospect is brighter, for a number of efforts by individual hospital committees have tapped new sources of income with surprising success, and the question is becoming not so much whether the voluntary system can be saved as how to do this with the least waste of energy and sacrifice of principle. The British Hospitals Association, which met again last week at Liverpool after an interval of eight years, took no discouraging view of the situation. Interest was shown by the large and representative attendance and by the vigour of the debates. The members of the Association are trustees, members of committees, or executive and professional heads of hospitals and kindred institutions, and it is evident that quite apart from the medical and nursing staffs of hospitals there is a large body of public servants keenly alive to the need for maintaining the voluntary principle and for keeping hospital management closely in touch with the conditions of the times.

Has the generous public disappeared? This was the question put by the Lord Mayor of Liverpool in opening the first session of the conference. But the trouble is that hospital treatment can no longer be provided for one section of the community simply by the generosity of another section. Sir ALAN GARRETT ANDERSON began his address to the conference by making this point quite clearly. As an official of King Edward's Hospital Fund, he described finance based on charity alone as a thing of the past. The present-day community is no longer sharply divided into rich and poor, and hospital finance can therefore not be carried on simply by begging from the rich for the "sick poor." OSLER's advice, given ten years ago, was brief and direct; make up your minds, he said, that you must accept the principle of taking pay from patients, it answers admirably elsewhere. Whether the pay shall be taken in time of sickness when the patient's earning capacity is reduced, or by way of small continuous contributions in time of health is a matter to be decided by the test of experience. The former method has been proved capable of producing substantial sums, and hardship can be avoided by judicious inquiry on the part of the almoners. The principle of workers' contributions collected with their full acquiescence by wage deduction at the source has, however, much to commend it. Prof. THELWALL THOMAS reminded the conference that the hospital at St. Helens is entirely supported in this way. At Sheffield, where the hospitals are run on a joint financial basis, an arrangement has been voluntarily adopted in 1100 business houses by which the workers agree to a deduction of one penny in the pound from their weekly wage, the employer adding one-third of the total amount thus collected to form a hospital fund estimated to produce something like £50,000 a year. Glasgow has a similar scheme graded from a levy of 1*d.* on wages below 30*s.* a week to 6*d.* on wages of 140*s.* and upwards. In Suffolk, where the agricultural labourer is notoriously poor, he contributes 1*d.* a week on the understanding that the farmer doubles the amount, and on this basis a sum of £2400 was available for the county hospital fund in the first completed year of the scheme. Sir ALAN ANDERSON was therefore quite correct in citing considerable provincial experience to justify the limited company, known as the Hospital Saving Association, now being started in London to give opportunity to persons within the hospital income limits of continuous contributions during health. A premium of 3*d.* a week, or 12*s.* a year, is here suggested as the amount to be paid in advance by a working man to cover the risk for himself, his wife, or dependent children. This will then be supplemented by the employer, as in Sheffield, to the extent of one-third of the total. To disarm the criticism that hospitals, and especially teaching hospitals, must retain their right to accept or reject patients on medical grounds alone, Sir ALAN ANDERSON stated that the hospitals to which the arrangement applies need not know that any particular patient is a contributor to the Association until the time comes for payment. The contributions will confer no right other than that already possessed by all those who turn to the hospital in time of sickness. But the system, if successful, will raise the financial claims of hospitals from their present humble position as the last item on the industrial budget to the position they ought to occupy—namely, one of the working costs of an organised business community.

Another large source of hospital income available this year raises questions of principle of which much more will be heard. On the representation of the Voluntary Hospitals Commission certain approved societies under the National Health Insurance scheme have agreed to allot £250,000 in 1922 out of surplus funds to go towards the maintenance in hospital of insured persons, the amount being at the rate of about £1 a week. Only one delegate to the British Hospitals Association's conference had any hesitation on principle in accepting such financial help—most felt that it was equitable if inadequate; but apparently the applications sent in so far will not nearly exhaust the sum available, many hospitals being unaware of the necessity of making a claim or

the method to be adopted in claiming. Here is another striking example of the need for coherent thought and action on the part of hospital managements, so eloquently set forth by Sir ALAN ANDERSON, the time being more than ripe for the evolution of a common policy, towards which the British Hospitals Association is in a position to give an effective lead. Economic conditions and density of population vary so widely in different parts of the country that uniformity of finance is evidently undesirable, but nothing can be lost by a generous exchange of views and a pooling of local experience. But the principles remain the same, and the spirit which has induced the general hospitals of London to accept the leadership of the King's Fund in respect of policy promises a speedy solution of some at least of the present difficulties. The combined appeal of the London hospitals, made through the Empire Day flag sale, is already known to have had great results; money is still coming in from outlying subcentres, so that no figures can yet be guessed at.

The Neurotropic Dermatoses.

IT has been well said that in the history of most diseases there are three phases. In the days of its first recognition a malady is named in accordance with its clinical features; at a later stage, when the underlying morbid changes have become known, it is designated by its pathological anatomy; and in its final and most developed phase the condition becomes re-christened with reference to its causal agent. It cannot be said that lethargic encephalitis has yet received this definitive baptism; but it is very evident that the active research of the last few years has brought to light such an abundance of facts about this disease, and its kindred conditions, that the establishment of a nosological group, including this variety of encephalitis, is now an accomplished fact. This is largely due to recent work by MM. LEVADITI, HARVIER, and NICOLAU, which merits very close consideration. These authors have pursued their already extensive inquiries into this disease, and have recently published a large number of new facts concerning the lesions which characterise it and its causal agent. As regards histological evidences of the latter they describe the occurrence of small acidophilic bodies, within the nuclei of nerve cells in those regions of the brain where the changes of the disease are most intense. These findings are far from constant, and the bodies described do not appear to be the same as those figured by DA FANO and INGLEBY, in this country, which are found mainly in the cytoplasm of certain nerve cells undergoing chromatolytic changes and are basophilic in their staining reactions; it is to be noted, however, that the corpuscles described by DA FANO were seen in human material, and those of the French authors in experimental animals, and it is further to be remembered that the familiar Négri bodies of rabies vary very much in appearance in different animals under different conditions.

It is not, however, by their work upon the exact properties of the infecting virus that LEVADITI and his colleagues arouse our greatest interest, but by their attempt to elucidate the relationship of this disease to allied conditions and to establish a family connexion between a whole series of diseases, including such apparently widely differing conditions as rabies and vaccinia, which are bound together by the common feature of dependence upon minute and filtrable viruses. It may be useful to endeavour to trace out the chain of experiments upon which this belief is grounded. From the initial fact that the virus of encephalitis reaches the central nervous system by the nerve trunks the procedure of making inoculations into an outgrowth of the nervous system—the eye—was developed. It was found that such intra-ocular inoculation of encephalitis virus led inevitably to the development of the disease in experimental animals and, further, that the inoculation of this virus by scarification of the cornea led, in the first place, to a local keratitis and subsequently to the development of encephalitis with typical lesions in the central nervous system. Further, the examination of the saliva of persons who had been in contact with cases of this illness showed the presence, in a certain proportion of these, of a virus in no way differing from that obtained from the brains of persons dying of the disease: these subjects were accordingly considered to be carriers of the germ. But in this connexion a further fact, which one may safely assume to have been unforeseen, became known: the saliva of a considerable number of normal persons, when inoculated into the scarified cornea, gives rise to a well-marked keratitis which in this case subsides and does not cause further inconvenience to the animal. The property of causing this keratitis appears to be due to a specific virus which in its general characters resembles that of encephalitis, being filtrable and found in the germ-free filtrate of the saliva, and in other respects behaving in the same way as the latter. After recovery of the cornea from such a lesion the part is found to have acquired resistance to re-inoculation with a less active strain of a similar virus, but in general no protection is afforded against more active viruses. To this rule occasional exceptions occur, which point the way to an understanding of the relationship of the different conditions now under consideration. It has more than once been found that a cornea previously inoculated with this keratitis-producing virus is immune to later inoculation with the encephalitis virus derived from carriers, and thereafter to the extremely potent virus fixé of experimental encephalitis. Coincident with the acquisition of resistance towards encephalitis, immunity is also acquired towards the closely related virus of herpes; which will produce corneal lesions in the rabbit and by generalisation finally cause death from cerebral involvement. These experiments show that there is a general type of immunity common to the herpetic, keratitis-producing, and encephalitic viruses, and LEVADITI and his colleagues conclude that they are essentially of the same nature, differing only in their relative affinities for the skin and the central nervous system.

The keratitis-producing virus is not found in the saliva issuing from Stenson's duct but only in that present in the mouth, where it is believed to exist in symbiosis with the epithelial cells. In like fashion, the virus of encephalitis lethargica is thought to occur in the same situation in the mouth: it has been shown to be capable of living for a long time in tissue cultures, and, whilst endowed with a definite affinity for epithelium and the central nervous system, it has no liking for mesenchymatous tissues, and it is not found in these in the bodies of animals dying of the disease. Passing from these considerations, and the previously mentioned close relationship of the viruses of herpes, keratitis, and encephalitis, the authors make out a case for the formation of a special group of diseases, designated Neurotropic Dermatoses, to include conditions such as these; all conveyed by filtrable viruses which have, in varying degrees, affinities for tissues of ectodermic origin, the skin and the central nervous system; some being essentially neurotrope, such as rabies, others dermatrope, such as their keratitis virus. They extend the group to include

the virus of vaccinia, which the work of A. MARIE has shown to be capable of propagation in the central nervous system, and is therefore facultatively neurotrope; whilst at the other end of the scale the group includes poliomyelitis, which is caused by an essentially neurotropic agent of a very specialised type, devoid of any pathogenic power towards the skin. The viruses causal of these diseases have other properties in common besides their filtrability and affinity for ectodermic tissues, and the authors have made out a good case for their consideration collectively.

We must be always grateful for any new presentation of a subject which better illuminates its features, and we appraise the value of the work we have been considering the more highly for the fact that, besides being an admirable example of the fruitfulness of the experimental method, it also contains some suggestive conceptions from minds at the same time logical and imaginative.

The Appeal of Ronald True.

IN comment[1] upon the trial and conviction of RONALD TRUE for the murder of GERTRUDE YATES it was pointed out in THE LANCET that Mr. Justice MCCARDIE, when he summed up to the jury, had expressed the view that the rule in McNaughton's case was neither clear nor exhaustive. He also suggested that the House of Lords might with advantage reconsider a standard of criminal responsibility set up in 1843, and in directing the jury with regard to TRUE he said that if they found him to have been deprived by mental disease of the power to control his actions, their verdict, in his view, should be "Guilty, but insane." We accordingly expressed the hope that possibly the Court of Criminal Appeal might be asked for a pronouncement upon the question of extending the rule in McNaughton's case. TRUE'S appeal has now been heard and dismissed, but no authoritative expression either of approval or disapproval appears to have been elicited from the court with regard to the direction as to responsibility given to the jury at his trial. The matter was fully before the court. Sir HENRY CURTIS BENNETT, TRUE'S counsel, reviewed at length Mr. Justice MCCARDIE'S summing-up and a number of other directions given by judges to juries, which he contended showed that they considered that a prisoner should be found to be insane if he was by mental disease deprived of the power to control his actions. As to this, the LORD CHIEF JUSTICE in his judgment pointed out that the jury in TRUE'S case had an extension of the McNaughton rule laid before them, but had nevertheless found the prisoner guilty of wilful murder.

This may have been all that it was strictly necessary for His Lordship to consider, but at the same time, in our opinion, it is to be regretted that he accorded neither assent nor dissent to the course taken by Mr. Justice MCCARDIE in extending the rule. In the course of Sir H. CURTIS BENNETT'S argument, Lord HEWART did indeed observe that anyone going beyond the established rule "seemed to get into a sea where there is no shore," but this uncharted sea is precisely what those who wish to see the rule altered desire to avoid, and the remark was in the nature of an *obiter dictum* rather than a definite ruling, leaving matters as they were. According to the judges of 1843, a prisoner may be found guilty but insane if, through disease of the mind, "he did not know the nature and quality of the act he was doing, or if he did know it, that he did not know that he was doing what was wrong." As matters stand, however, various judges, so Sir H. CURTIS BENNETT argued, have gone beyond this, and have admitted to consideration the question whether the prisoner was mentally incapable of controlling his acts, or was subject, when he committed his crime, to an "uncontrollable impulse;" and whatever other judges may have done, Mr. Justice MCCARDIE undoubtedly acknowledged such a principle as just and right, and in his view legal. If the definition of irresponsibility is left to individual judges, one going far, another less far, and a third refusing to guide the jury by anything except the McNaughton rule, it is true that we embark upon a sea without any shore. This can hardly be satisfactory to lawyers or to the public; and, accordingly, Mr. Justice MCCARDIE at TRUE'S trial suggested that the House of Lords ought to revise the tests to be applied.

It is certainly unsatisfactory to medical men, who in considering the question of the mental state of a prisoner naturally desire to know to what points with regard to his mental capacity their attention should be directed, and by what standards his responsibility is to be judged. Many medical men also, experts in mental disease, feel compunction and horror at the idea of punishing for his actions, to the extent of executing him where he has caused death, a man who, being clearly incapable of controlling his impulses, commits criminal acts, but who does not come within the four corners of the McNaughton rule. They consider, moreover, that they appreciate the defects and workings of the insane mind better than these were understood by medical men or judges in 1843.

[1] THE LANCET, May 13th, p. 954.

AN INQUIRY INTO THE PRISON SYSTEM.

THE report of the Prison System Enquiry Committee will be published on June 29th. The Committee has been making a detailed investigation for three years, and the report is based on the evidence of nearly 300 ex-prisoners of every type, including two men who have served life-sentences for murder, 50 prison officials of the different grades, as well as many visiting magistrates, agents of discharged prisoners' aid societies, and other persons with direct knowledge of the subject. The editors of the report, Mr. Stephen Hobhouse and Mr. A. Fenner Brockway, themselves served long terms of imprisonment during the war. The chairman of the Committee is Sir Sydney Olivier, and its membership, which represents the various schools of political thought, includes the Earl of Sandwich, Lord Henry Bentinck, M.P., the Hon. George Peel, the Right Hon. J. R. Clynes, M.P., Mr. and Mrs. Sidney Webb, Miss Margery Fry, J.P., and Mr. Cecil Leeson (secretaries to the Howard League for Penal Reform), Dr. Ernest Jones, Rev. W. D. Morrison, and Mr. Bernard Shaw. The conclusions of the Committee regarding the mental and moral effects of imprisonment will arouse much discussion. The report will be published by Messrs. Longmans, Green, and Co.

CONFERENCE ON MENTAL DEFICIENCY.—A two-day conference will be held at Caxton Hall, Westminster, on July 26th and 27th, under the auspices of the Central Association for Mental Welfare (formerly the Central Association for the Care of the Mentally Defective). The first day will be devoted to discussion of Mental Deficiency in relation to Crime, and the Rt. Hon. Lord Justice Atkin will give an address; the second day will be devoted to Educational matters, when the Rt. Hon. H. A. L. Fisher will attend and address the conference. Further details may be obtained from the Hon. Secretary, C.A.M.W., 24, Buckingham Palace-road, London, S.W. 1.

Annotations.

"Ne quid nimis."

VAQUEZ'S DISEASE.

WHETHER the different kinds of disease can be distinguished from one another on the same general principles by which the sorts of plants and animals are separated into species is a philosophical question of some nicety. If a disease is a specific response to a change in environment, it corresponds only to a Lamarckian conception of a species; Darwinian and even Mendelian diseases there may be, but they are few and far between. The condition known as the "effort syndrome" seems to be just the extreme variant of the normal response to physical exertion; in hæmophilia there is no doubt a bit of a chromosome which is responsible. But most diseases as we know them are reactions to injury, and any lack of definition at their boundaries is the natural result of the variability in quantity, intensity, and time relations of the reagents. If the morbid systematist has to sink a certain number of newly described diseases as synonyms of what is already known, no one will question that the condition distinguished 30 years ago by Prof. Vaquez, by the association of polycythæmia, splenomegaly, and cyanosis, is a genuine and separate disease in any ordinary sense. It is a real pleasure that the author should visit London and take a survey of his child as Prof. Vaquez did last week at the Royal Society of Medicine. It must be admitted, as he frankly allowed, that no very definite progress has been made in the direction of cure. Radiotherapy and X rays will do something, and sometimes a good deal, by way of alleviation; patients may be cured from their own point of view in the sense that they feel quite well, if only for a time. Bleeding is, as everyone has found, of temporary benefit only, but we are not sure that the disappointment of having to do it again and again has not led to some neglect of the possibility of making a patient's life relatively comfortable over a course of years by this simple procedure. In reaching an understanding of the nature of the condition there has been much more advance; indeed, the relative failure of therapeutics has helped to an appreciation of what the disease is. The primary anatomical error is the polycythæmia, the enlargement of the spleen being a secondary development, and the cyanosis due to the stagnation of the viscous blood in the surface vessels. The excess of red cells is due to over-action of the bone marrow, as Parkes Weber demonstrated when he studied the first cases identified in this country, and as is shown by the constant presence in the circulating blood of a few nucleated red cells. The only known cause of a persistent polycythæmia produced in this way by active growth of red cells is a defect somewhere in the chain of transference of oxygen from the air to the tissues. It may be that the air contains too little oxygen (as at high altitudes), or that some of the hæmoglobin is inactive (as in chronic carbon monoxide poisoning), or that the rate of circulation is too slow (as in congenital pulmonary stenosis). No possible explanation of Vaquez polycythæmia can be found along these lines. It is evidently not compensatory and beneficial, but cryptogenetic and harmful. An overgrowth of any solid tissue which has these characters is grouped as a tumour, and the disease is best regarded as a benign tumour of red corpuscles just as leukæmia is a malignant tumour of leucocytes; pernicious anæmia is possibly its malignant analogue. In indicating these considerations Prof. Vaquez has illustrated to our advantage the benefits which the peripatetic physician may confer. Medicine is international, but not international enough; each locality develops its own traditions and doctrines which is all to the good if they do not keep them too much to themselves and be content with that. And what is true of national views is true of our own schools among themselves. An interchange of teachers between the London schools would do much to promote true learning and a catholic medical education.

DENTAL REGISTRATION.

WE are informed by the Registrar of the Dental Board of the United Kingdom that the passage of time renders it desirable that those who wish to be registered or entered under the various sections in the Dentists Act, 1921, should now make application as quickly as possible. On the average a period of about two months elapses after an application is received before the registration is effected, and a person who is not registered when the Act comes into force, whether he has made application or not, will be prohibited from practising. It is thus important that those who desire to apply for registration and have not yet done so should immediately proceed with their applications.

THE CHOICE OF CASES FOR TREATMENT BY ARTIFICIAL PNEUMOTHORAX.

TEN years ago Dr. L. Colebrook and Dr. Parry Morgan showed that it was possible to maintain a pneumothorax simultaneously on both sides of the chest without causing the patient great embarrassment. Dr. Parry Morgan's researches into the mechanism of the partial pneumothorax find striking support in a recent paper by Dr. N. Barlow and Dr. D. Kramer.[1] The partial pneumothorax, single or bilateral, is, in their experience, far more effective than the complete unilateral pneumothorax which is so frequently associated with pleural effusions. Only in one out of 30 cases did a pyo-pneumothorax develop under their system of partial, low-pressure pneumothorax, which involves far less tension on pleural adhesions than the present high-pressure method. Nine of their 30 patients passed from their care into that of exponents of the complete pneumothorax school, and six of these nine developed pleural effusions. If these authors' teachings prove sound, it would be no exaggeration to say that treatment by artificial pneumothorax promises to be revolutionised, and the time may come when bilateral pulmonary tuberculosis will be treated as a matter of course by a simultaneous, partial, bilateral pneumothorax. But this revolution has certainly not yet been made good, and stimulating as the authors' paper is, it is not wholly convincing.

There is not yet a consensus of opinion as to which cases are most suitable for artificial pneumothorax treatment, but those with an early unilateral apical lesion, or similar ones with an old arrested focus on the other side, would appear very favourable. In this connexion the case recorded in a recent number of the *Bulletins et Mémoires de la Société des Hôpitaux de Paris* (April 13th) is of interest. A boy, aged 14½ years, showed signs of tuberculosis at the apex of the right lung, and had several slight hæmoptyses. An artificial pneumothorax operation was performed on the right side about two months after the apparent onset of the disease. The left lung showed nothing abnormal on clinical examination, and the sputum contained no tubercle bacilli. The pneumothorax was maintained for three months, when signs of meningitis appeared, followed by death in 18 days. At the autopsy, in addition to the pathological changes due to the tuberculous meningitis and a slight degree of pericarditis, the lungs showed at the right apex a small cavity containing pus, but compressed and undergoing fibrosis. At the apex of the left lung, however, there was a small caseous focus, and around it numerous old tuberculous lesions, some of which were calcified. It was considered that the tuberculous septicæmia resulted not from the recognised lesion at the right apex, for which the pneumothorax had been success-

[1] American Review of Tuberculosis, April, 1922.

fully performed, but from the old focus at the left apex, which was not clinically detectable. The excessive strain imposed upon the left lung, when its fellow was placed out of action, so increased the circulation around the old lesion that tubercle bacilli gained access to the blood-stream. If many of these cases occurred and the suggested explanation should be accepted, the known risks of artificial pneumothorax would be definitely increased.

Dr. Irma Neuer has recently contributed a paper to *Beitr. z. klin. d. Tuberkulose*, vol. l., 1922. It is founded on 91 cases selected for this treatment at her hospital since 1908. Her first trenchant observation is that, with the present standards for selection of cases, promising cases sometimes do badly, and the apparently hopeless case, treated by artificial pneumothorax as a placebo, not infrequently makes a startling recovery. Clearly there is something wrong with our standards, and, as Dr. Neuer's figures show, to reserve this treatment for strictly unilateral disease is a counsel of perfection which is also a counsel of foolishness. The prognosis depends much less on the extent and distribution of tuberculosis in the body than on the character of the disease and the organism's reaction to it. When Dr. Neuer classified her cases according as they were or were not complicated by non-tuberculous diseases, she found these complications were equally divided among her successes and failures. When adequate collapse of the most diseased lung was effected, tuberculous lesions in the larynx, intestines, the sounder lung, and elsewhere almost invariably proved stationary or became arrested. She had many failures among cases in which the disease had lasted less than a year, and many successes among cases of several years' standing. All of which goes to prove that, in the choice of suitable cases, one should be guided rather by the character than the anatomical distribution of the disease.

ENDOTHERMY.

IN a preliminary report Dr. George A. Wyeth[1] draws attention to this method of treatment of accessible malignant growths, emphasising some of its outstanding advantages. Endothermy is the production of heat in the tissues from within, the active electrode being cold when applied, the process differing therefore from other methods of cauterisation by heat. The treatment may be employed in two forms: (*a*) desiccation, obtained by the monopolar current, with high voltage and low amperage, admitting of extremely fine work, e.g., in the cornea or in the vocal cords; and (*b*) coagulation, obtained by the D'Arsonval or bi-polar current of low voltage and high amperage, for lesions of larger size and greater depth. The first step in the procedure is to describe in the healthy tissue outside the malignant area a ring of coagulation necrosis shutting off and destroying the blood-vessels and lymphatics leading to and from the diseased area, after which the growth itself is completely destroyed in situ by dividing it into small sections which are then coagulated or desiccated piecemeal. The tumour having thus been destroyed, the débris are recovered by curetting or otherwise, and the resulting clean base receives a final application of the current. As the process enables the growth to be removed as a necrotic mass instead of as a group of viable cells, the risks of metastases and of recurrence are greatly reduced, while the destruction of the sensory nerves which incidentally results from the ring of necrosis gives immediate and lasting alleviation of pain in inoperable cases. Dr. Wyeth points out that if the work is properly done there should be no hæmorrhage whatever, but that as a secondary hæmorrhage may occur in isolated cases a preliminary ligation of any important blood-vessel in close proximity to the growth might be advisable. The value of endothermy in so-called inoperable carcinoma is said to be great, owing partly to the alleviation of pain, partly to the sterilising effect of heat upon a foul discharging area, and partly to the improvement in the general condition consequent on a return to more or less normal diet. Details are given of four cases satisfactorily treated by endothermy, two by desiccation under local anæsthesia, and two by coagulation under general anæsthesia, the photographs testifying to the excellent cosmetic effect obtained. While Dr. Wyeth does not feel justified in using the word cured in relation to any of the cases, the reports are encouraging as far as they go; and the applicability of the method to various pre-cancerous dermatoses such as lupus vulgaris, lupus erythematosus, X-ray dermatitis, and papilloma, as well as its use in malignant disease, both operable and inoperable, suggests for it a wide field of usefulness.

[1] New York Medical Journal, April 19th, 1922.

HEALTH VERSUS SCHOLARSHIP.

> "Who is the cosmo-directive, cosmo-perspective genius who has promulgated the decree, which none dares challenge, that knowledge must be acquired of the position of Valparaiso on the map, and of the place and date of Henrik Fuglefænger's death . . ?"
> —EDVARD LEHMANN.

WHILE the science of pedagogy is still in the melting-pot, and before it has emerged in a form that may be stereotyped for many years to come, it is well that the experiences and views of school medical officers should be given prominence, and that the question of the influence of the school curriculum on the scholar's health should not be left to the decision of the layman. A paper, very pertinent to this matter, has lately been published by Captain N. C. E. Hertzberg and Dr. Carl Schiötz,[1] chief of the school medical service in Norway. The object of their researches was to discover the influence of seasons and holidays on the physical development of school children, and their first task was to ascertain, as a standard for comparison, the seasonal variations in the weight and general health of persons whose reaction to the seasons was not obscured by school work. For this purpose they cite Strandgaard's investigations of the weights of sanatorium patients, and Schmid-Monnard's study of the weights of children in the pre-school age. These two series show a remarkable similarity, suggesting that the seasonal changes in weight are governed by fundamental factors common to all classes. According to Strandgaard, a curve indicating weekly gains of weight runs practically horizontal from December to May—a six-month period of minimum gain of weight. The curve rises from May to September, and from this month to December there is a steady decline. In Schmid-Monnard's research, a fairly sudden comparative decline in the gain of weight began in February, became more marked in March, and it was not till June that the gain of weight returned to the rate observed early in February. The chief gain of weight was in August, September, and October. Again, vital statistics show the highest death-rate in February, the lowest in September, the mortality curve falling slowly from February to September, and then rising somewhat more abruptly from September to January. Thus the first half of the year is marked by a high mortality and low vitality, as judged by the body-weight, while the latter half—notably August, September, and October—is the period of greatest vitality and least mortality. Having established these standards for comparison, Captain Hertzberg and Dr. Schiötz review their records of chest, weight, and height measurements of 70 boys between the ages 12 and 16 in the period January, 1920, to January, 1921. Each boy was examined 11 times, and in each case Rohrer's height-weight index was calculated. The most significant feature of their curves are the declines imposed by school work at seasons when, under physiological conditions, there should be a rise instead of a decline.

[1] Medicinsk Revue, February, 1922.

Further, the summer and Christmas holidays were marked by a definite rise, and even the short Easter holiday was long enough to impose a small spur on the curve as it descended from January to May.

The last months before the beginning of the summer holidays were characterised by the lowest weight and chest measurements in relation to the height, and the same conditions were found in the last months before the Christmas holidays. In the first half of the year, when the rate of growth of height is incomparably greatest, it was found that both the height-weight index and the relative chest measurements diminished appreciably. The authors ask: Can school work alter the physiological fluctuations in the development of the child with impunity? Their answer is emphatically in the negative, and they call for a rearrangement of holidays more in consonance with the physiological requirements of the child. At present the autumn term lasts from August 19th to Dec. 21st; the spring-summer term from Jan. 9th to June 30th. Thus the term when the child enjoys the greatest vitality is one of 103 or 104 days, while the spring-summer term is one of 132 or 133 days. Would it not be wise, the authors ask, for June to be given up to holiday-making, and for August to be made a work instead of a holiday month? The authors recommend starting the summer holidays on June 1st and letting them last till the end of July. The Easter holiday, which comes at the time of the child's lowest vitality, should be prolonged to 14 days, and the autumn term should be given 119 or 120 days, while the spring-summer term has only 99 or 100 days. The authors anticipate opposition from teachers anxious to keep the school curriculum complete at all costs, but as they dryly remark, after all school curricula are merely man-made; their wisdom is open to question, particularly when they are found to run counter to the deep-rooted physiological needs of the growing organism. School conditions in Norway are not exactly those of this country, but the similarity is close enough to warrant applying the writers' remarks to our own school system.

OXALIC ACID POISONING.

S. A. Brown and A. O. Gettler, of Bellevue Hospital, New York City, have made a careful study[1] of oxalic acid poisoning, a subject of practical interest seeing that deaths due to oxalic acid and its soluble salts have so increased that to-day it ranks amongst the first three poisons in the number of fatalities. In the five years 1912 to 1916 there were 448 deaths in England and Wales due to oxalic acid. The duration of a case of oxalic acid poisoning is usually between two and 14 days, although Ogilvie[2] records a death occurring within three minutes. Oxalic acid acts locally as a corrosive and is more or less destructive to the mucous membrane with which it comes in contact. The lips, tongue, pharynx, and œsophagus are discoloured yellowish white, sometimes marked with patches of reddish hue. The mucous membrane of the stomach is coarsely corrugated and presents a bright-red colour; it is soft, pulpy, and eroded in patches and easily detached. Perforation is rare. The systematic effects are fall of blood pressure, arrhythmia and retardation of pulse, slow breathing, paralytic symptoms and fibrillary muscular contractions, with paralysis of the respiratory muscles. There is destruction of red blood corpuscles, and the tissues show fatty degeneration. The mortality in 242 reported cases was 54·5 per cent., but the ratio, of course, depends upon the manner and speed of treatment. Post mortem, apart from the local corrosive action, there are no typical pathological lesions with one exception—viz., in the kidneys, where the cortical substance may present a definite whitish appearance due to the presence in the tissues of crystals of calcium oxalate. Calcium oxalate crystals have also been found in the blood, bile, aqueous humour, and pericardial fluid. The elimination is mainly through the urine (80–90 per cent.). The urine may contain albumin, a reducing substance, and hyaline casts. As to treatment, the oxalic acid should be neutralised and precipitated as quickly as possible by giving plenty of syrup of lime or a suspension of calcium carbonate. The stomach should be washed out with lime-water, and lastly with plenty of plain water. Diuretics and abundance of liquid should be given, as well as alkalies. The authors describe a case where, although antidotal treatment was delayed, recovery took place during the patient's stay in hospital, where they were able to make a complete blood study. This patient had partaken of a mixture of salts which contained 73 per cent. $MgSO_4$ and 27 per cent. oxalic acid, containing about 4 g. of pure oxalic acid. The most common fatal doses are said to be 7 to 15 g., though 3·88 g. have proved fatal. The most plausible explanation offered of the recovery is that the simultaneous taking of magnesium sulphate hastened the elimination of the poison.

[1] See Jour. Expl. Biol. and Medicine, xix., February, 1922.
[2] THE LANCET, 1845, ii., 205.

THE MENOPAUSE AGE IN FINLAND.

H. R. Malmio of the University of Helsinki, in Finland, has investigated this subject in 220 cases of inmates of almshouses.[1] Their ages were between 55 and 80. The mean age at which the menopause occurred was 48·66; in 60 cases in Swedish women it was 48·58, so that there was no practical difference. In women who had borne only one child, the menopause seemed to be somewhat delayed, while in multiparæ its onset was somewhat accelerated. The onset of the menopause seems to be largely independent of the period of onset of puberty. Similar investigations in the Gynæ·ological Clinic of the University of Helsingfors gave a mean of 48·53 years. It appears that the mean age of onset of puberty in Finnish women is in the region of 16 years, and thus their reproduction extends over about 32·5 years.

THE DENTAL ASPECTS OF CLEFT PALATE.

THE ætiology and significance of the various dental defects associated with cleft palate are reviewed in the *British Dental Journal* (May, 1922) by Mr. A. Pitts, who points out that they fall into two classes: those which are part of the congenital condition, and those due to the operative treatment. The first-named type is found only in patients with complete clefts involving the premaxilla, who have normal jaws in the molar region, although the incisor teeth are irregular owing to the defective development of the premaxilla. Mr. Pitts discusses at some length the embryology of this defect and then passes to the consideration of the second type of dental defect. He points out that these have received little attention from surgeons, and considers that they are of considerable significance as affording an additional criterion of the value of the respective types of operation. Irregularities of the teeth caused by operation do not become apparent until several years later, but he considers that they are nearly always present, sometimes in extreme degree. Data are lacking as to the distant effects of Brophy's operation, although H. Blakeway has shown that there may be necrosis of the temporary teeth. Brophy himself states that the wires can be passed through the maxilla without injuring the temporary molars, but Mr. Pitts points out that the tooth germs of the premolars, although not calcified, are present, and that no manipulative skill can enable a surgeon to judge whether he is injuring them. Damage to these teeth would only be shown some years later. The flap operation of Lane and the Langenbeck operation both cause dental deformity which differs in type. In the flap operation there is a unilateral contraction of the dental arch on the side from which

[1] Berichte üb. die Gesamte Physiologie, vol. xii., 1922.

the flap is taken; in the Langenbeck operation the contraction is bilateral due to the pull of scar tissue on each side. Numerous illustrations of models are given by Mr. Pitts to demonstrate these features. He states that the dental deformity is relatively much greater in the flap operation than in the Langenbeck, and is more difficult to correct by dental treatment. Many dentists condemn operations for cleft palate on the ground of the severe dental deformities resulting, but, as Mr. Pitts points out, such criticism should discriminate between the different types of operation. It is irrational to condemn operations for cleft palate from the dental standpoint alone; but it is equally irrational for surgeons to ignore this factor in deciding as to the best method of operating. That the flap operation gives a worse dental result than the Langenbeck operation is in itself not sufficient to condemn it, but it is a point against it, and the exponents of the flap method should be prepared to adduce some positive advantage, not shared by the Langenbeck operation, to counterbalance the inferior dental result. Mr. Pitts pleads for a closer liaison between surgeon and dentist in the treatment of cleft palate since the part played by each is an integral factor in the attainment of a successful result.

ANOTHER £10,000 FOR CANCER RESEARCH.

IT has been known for some time that a further voluntary gift of £10,000 was shortly to be distributed for the purposes of cancer research. The donors, Mr. and Mrs. G. F. Todman, of New South Wales, had appointed Sir Joseph Hood to allocate the benefaction, given in memory of their daughter, the late Mildred Hope Buzacott, after careful inquiry into the work in progress in different centres. Under these circumstances it is not surprising that the largest fraction should have been given to the Imperial Cancer Research Fund, since for many years the director and his colleagues, sifting the various problems as they arise, have pursued without wavering the paths indicated by their own work or by that of others as being hopeful; though they have been undisturbed by ephemeral and fashionable cults, they have never hesitated to explore any side-tracks which showed evidence of promise. As soon as it was demonstrated by Japanese workers that it was possible to produce tumours experimentally by painting with tar, they were inspired to initiate this line of investigation in this country and have pursued it actively ever since. The conditions under which neoplasms may be artificially produced in mice by this long-continued process of irritation are being studied,[1] and the malignancy of some of the resulting tumours has been absolutely proved by their survival after autoplastic transplantation and by other accepted criteria. The essential relation between experimental growths in animals and human neoplasms having now been definitely established, largely by patient work at the laboratories of this fund, the advantages and moreover the protection afforded to the human sufferer by experimental work on animals are sufficiently obvious. The choice of cancer produced by irritation as the main subject for discussion at the Pathological Section of the forthcoming B.M.A. meeting is a sign that the importance of the subject is receiving wide recognition. The work being done at the Imperial Cancer Research Fund includes also investigations into tissue cultures in vitro, the effect of deprivation of vitamins upon the growth of malignant tissues, and the possible differences in metabolism between innocent and malignant cells.

Though two-fifths of the total sum available has thus been earmarked for experimental purposes, other research work more directly connected with hospital patients is also being subsidised at the following institutions: the Middlesex Hospital, the Cancer Hospital (Fulham-road, London), the Christie Hospital, Manchester, the University of Aberdeen, and the Cancer Hospital, Glasgow. In each case one-tenth of the whole sum is being received. The remaining £1000 has been equally divided between the two Radium Institutions in London and Manchester.

[1] Seventh Scientific Report, Imperial Cancer Research Fund 1921. London: Taylor and Francis. 15s. Also THE LANCET, 1921, ii., 1117.

PSEUDOXANTHOMA ELASTICUM.

IN an illustrated article on this rare skin disease, of which little over 20 cases have been recorded, Dr. Binford Thorne[1] and Dr. Herman Goodman, of New York, state that it was first described by Balzer in 1884 and was given its present name by Darier in 1896. The ages of the patients have ranged from 7 to 74 years. Most of the cases have occurred in the female sex. Eight cases have been reported from Germany, five patients have been Irish, three French, three English, and one each from Italy and Japan. One of the cases now recorded was an American of German descent and the other was an Italian woman. Pseudoxanthoma elasticum has been associated with various other diseases, but tuberculosis only is supposed to have any ætiological connexion, though consanguinity of the parents has been incriminated as a cause of the disease. In a number of instances two members of the same family, usually sisters, have been affected. The principal clinical features are small papules, individual and confluent, or massed into plaques, grossly thickened skin where the lesions exist, exaggeration of the normal creases, and duplication of the normal folds. The colour of the lesions in the reported cases varied from normal to light pale, whitish to ivory, ivory with light bluish tinge, various shades of yellow, slate brown, and leaden hue. The essential histological features are clumps of swollen and degenerated elastic fibres with basic degeneration of the collagen fibres in the lower and middle layers of the dermis. The epidermis and pars papillaris of the dermis show little change. The sweat and sebaceous follicles are not involved.

THE NATIONAL HEALTH INSURANCE BILL.

LAST week the National Health Insurance Bill was read a second time, a motion for rejection on the grounds that the medical profession and the approved societies were at direct variance concerning the measure meeting, however, with some support. An interesting debate, which we report elsewhere, resumed facts which have been recently stated in these columns, so that we are glad to record the definite statement of the Minister of Health, that the apprehension in the minds of the medical profession that the Bill will necessitate rearrangements in the control of the medical benefit, is unfounded. There is no word, he stated, in the Bill which in his opinion modifies the existing statutory provision for the control of medical benefit. In the House of Commons many of the stereotyped attacks on the medical profession for not coöperating with the approved societies were made, and these were refuted eloquently by Major Farquharson, who once again pointed out that the medical profession has no objection whatever to the approved societies having access to the Minister of Health, but the greatest possible objection to the approved societies being placed in any position from which they can decide on either the duties or the salaries of panel practitioners.

Sir Clifford Allbutt, Regius Professor of Physic, Cambridge, has been elected an Hon. Foreign Member of the American Academy of the Arts and Sciences.

[1] The Urologic and Cutaneous Review, May, 1922.

INDIAN MEDICAL SERVICE DINNER FUND.—The annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant on Wednesday, June 14th, at 7.45 P.M., Lieut.-Colonel J. Anderson, C.I.E., in the chair. Tickets and all particulars may be obtained from the joint hon. secretary, Colonel J. J. Pratt, I.M.S. (ret.), 63, Addison-road, London, W. 14.

ADVANCED MEDICINE:

INTERNATIONAL COÖPERATION.

ADVANCED lectures in medicine, under the auspices of the University of London, have been given at the house of the Royal Society of Medicine, on the afternoons of May 22nd, 25th, and 31st, by the following professors in the Faculty of Medicine of the University of Paris. On May 22nd, Prof. F. Widal discussed Anti-anaphylaxie. Prof. H. Vaquez's lecture on May 25th, entitled De l'Érythrémie, is abstracted below, and the subject is annotated on page 1108. Prof. Babinski on May 31st spoke on Des Réflexes de Défense, with the authority given him by his well-known original researches in neuro-pathology.

ANTI-ANAPHYLAXIS.

BY PROF. F. WIDAL.

Prof. Widal first summarised the various considerations to be borne in mind in the study of anaphylaxis, and analysed the few basic principles which are already established. Besredka had shown in 1907 that anaphylactic shock could be prevented in a sensitised animal by the administration of a minute quantity of the anaphylactic substance before the main injection. This phenomenon was sufficient to prove that shock was not an intoxication. Prof. Widal contended that shock is the result of a disturbance of the colloidal equilibrium of the plasma (colloidoclasis). It was now known that the principle underlying anti-anaphylactic vaccination is not specific; the preventive injection need not be of the same substance as that expected to produce shock, but that other substances, very different chemically, can fulfil the same office. Crystalloid substances can possess in a certain measure the same property of preventing shock; moreover, not only hypodermic injections, but oral administration also is efficacious. For a long time clinicians had to deal only with the accidents of sero-anaphylaxis—that is, with those consecutive to the injection of serum; here the previous injection of a small dose of a diluted therapeutic serum remains the best process; its efficiency is universally recognised. Sero-anaphylaxis represents, however, for the physician only an example of artificial anaphylaxis under experimental conditions. It is not a spontaneous anaphylaxis such as occurs in nature. It is through the mucous membrane of the digestive tract or the respiratory tract that infinitesimal doses of innumerable substances are brought daily in contact with the human organism; their action can, sometimes after years, end by sensitising the organism to a particular substance. Of this order is the alimentary anaphylaxis frequently exhibited by the infant towards milk or egg, and also the anaphylaxis by inhalation, resulting in asthma. These principles suggest the methods of preservation against the shock and the methods of desensitisation.

Prof. Widal said that for subjects suffering from alimentary or medicinal anaphylaxis all that is necessary to prevent an attack of urticaria or migraine is to give a minute dose of the alimentary substance or medicine one hour before taking the usual quantity. In cases of alimentary anaphylaxis, where one cannot recognise the specific cause, preservation against shock can be obtained by ordinary albuminoid substances—for example, peptone, administered in a dose of 0·5 g. one hour before meals. An injection of sodium chloride prevents serum shock, and one of sod. bicarb. or sodium chloride the shock produced by an injection of arsenobenzol in certain subjects.

The important point for the physician is not only to prevent the anaphylatic shock on each occasion when it may be expected, but also to protect the organism for the future by densitisation. In digestive anaphylaxis it is generally easy to incriminate with certainty the responsible antigen; and this can be used for specific desensitisation. To individuals susceptible to egg, milk, or any other substance, infinitesimal doses of the substance may be given internally, and the dose increased progressively. According to Prof. Widal, this method is often used for infants. Specific desensitisation is only in certain cases capable of curing susceptibility. There is also place for a non-specific desensitisation whereby results are obtained with substances quite different from those which have brought on anaphylaxis: For instance, in certain cases of anti-anaphylaxis where the causative agent is difficult to find, the ingestion of a very small quantity of peptone one hour before meals is capable not only of preventing anaphylactic symptoms but also, after a time, of causing the disappearance of the anaphylactic state of the subject. Against the accidents which belong to respiratory anaphylaxis, such as asthma, hay fever, and certain forms of eczema, desensitisation can be obtained by the subcutaneous injection of progressive repeated doses of the specific substance causing anaphylaxis. Desensitisation can also be obtained, by a completely different process, by bringing about physical shock. This form of therapeutics has given some most remarkable successes in certain cases, but is not without risks and cannot be recommended without considerable reservations.

Prof. Widal referred also to the symptomatic treatment of shock with substances such as adrenalin, atropine sulphate, and also to endocrine therapy. The means available for fighting against anaphylactic manifestations were varied and numerous. All had been used with success, and all had in other cases met with failure. It was necessary to be patient and to try successively different procedures, not forgetting the unexpected success which some of them had given in cases which up till then had defied all treatment.

ERYTHROCYTHÆMIA.

(Vaquez and Osler's Disease.)

BY PROF. H. VAQUEZ.

This curious disease was described for the first time in 1892 by Prof. Vaquez, who then noted the cardinal symptoms, cyanosis, polycythæmia, and splenomegaly. More recently, the late Sir William Osler, in 1903, published several observations. Since then cases have been frequently noted and will doubtless be met with in still greater numbers if the disease, which is really easy to diagnose, is not missed. Dr. Parkes Weber has confirmed the original observations of Prof. Vaquez, in showing that the pathological cause of the disease consists in hyperactivity of the bone marrow.

The purpose of the lecture is not to recapitulate the symptomatology of erythrocythæmia, which has been described completely in various monographs by Lutenbacher of Paris, by Mosse of Berlin, and above all by Parkes Weber, but to elucidate certain points which are still under discussion. The German authors, disappointed perhaps in having had no part in this new clinical discovery, have pretended to create a special form called Giesböck's disease, in which, in addition to the signs already described, high blood pressure is present. Orlowski has done justice to this pretension. High blood pressure, it is true, may be present coincident with erythrocythæmia, and having regard to its great general frequency that is not astonishing. If, however, one wishes to establish the proper relation between cause and effect, we must admit that it is erroneous to raise this coincidence to the position of a separate disease.

On the other hand, some have said that erythrocythæmia is only a syndrome and may appear in association with various other conditions such as tuberculosis of the spleen and even in hydatid cyst of that organ; one such case has been reported. It is enough to remember that in such cases no one has ever observed the fundamental anatomical basis of the disease—that is to say, the return of the marrow to the fœtal state. Moreover, it is remark-

able that, in connexion with hydatid cyst of the spleen the curing of the cyst has been followed by the disappearance of the associated signs, particularly polycythæmia, which has never been observed after splenectomy in the course of a case of true erythrocythæmia. Moreover, the study of these secondary polycythæmias has not been followed sufficiently far. It would indeed be very interesting, and it is quite possible that the polycythæmia can be explained by a stimulation of the spleen caused by a primary lesion and the production in that organ of abnormal centres of myelomatosis. In this connexion, one must add that the existence of such centres are not rare in erythrocythæmia. The author has contributed on this subject sections from a recent autopsy in which it is easy to recognise at the level of the Malpighian bodies eosinophile myelocytes with bilobular nuclei, primal elements which one knows to-day may derive their origin from other cellular elements, belonging either to the white or red groups of corpuscles. This fact, if it were definitely proved, would establish clearly the connexion between true erythrocythæmia and the polycythæmia secondary to an affection of the spleen. In the present state of our knowledge it is permissible to suggest that erythrocythæmia is a specific disease of definite entity, as Vaquez and Osler declared in their original observations.

There remains the question of treatment, a question which is very unsatisfactory up to the present, because the disease goes steadily to a fatal ending, but perhaps recent researches allow us to look forward to a more hopeful result. Radiotherapy has given certain satisfactory results, and this line of treatment is worth careful consideration. If one believes the observations reported by several authors, particularly by Lüdin and Beclère, the irradiation of the bones, especially in the region of the epiphyses, produces a considerable diminution, sometimes for a long period, in the red cell count, and a diminution, also, if not a complete disappearance, of the subjective symptoms. In one of our cases such a result was obtained, and we have concluded from these facts, as we stated in a paper presented to the Académie de Médecine, that rontgenotherapy is the only measure of any use in combating erythrocythæmia. This is still our opinion. It must be thoroughly understood that the application of the X rays should be made exclusively over the bones, because when they are applied over the spleen they can only have the same unfortunate effect as splenectomy—that is to say, the destruction of the erythrocytolytic function of the organ.

In spite of the good results recorded, however, I am afraid that radiotherapy can only arrest but cannot cure, and can do nothing but hold the polycythæmia in check. It is the same in the case of leukæmia, and is one proof the more of the justice of the conception of Aubertin, who places these two diseases in a common group—typical myelomatosis; leukæmia being a myelomatosis of the leucocytes and erythrocythæmia a myelomatosis of the red cells.

DEFENSIVE REFLEXES.

By Prof. Babinski.

Prof. Babinski said that the term "defensive reflexes," chosen as title of his lecture, had been employed for a considerable time and was useful since it did not imply any definite hypothesis as to the mechanism of the motor reactions described under this category. He then proceeded to describe these motor reactions, discussing first those which are produced in the stimulated lower limb, excluding reflex movements of the toes. He discussed the resemblance between pathological and physiological reactions, giving as criterion of pathological defensive reflexes the *reflex flexion of the foot* elicited by stimulation of the foot or leg, *exclusive of the plantar region*. The importance of this sign in neurology is that it is easy to demonstrate, is frequently present, and reveals a lesion of the pyramidal path. The close connexion between this sign and the Babinski toe-phenomenon (reflex extension of the toes, especially the hallux, together with reflex abduction of the toes) is clear, the one completes the other. As regards their mode of production, they would seem to have a common pathogenic origin though one may be present without the other. In certain cases, admittedly rare, the presence of a pyramidal lesion may be revealed by the presence of reflex flexion of the foot, even when the extensor toe-phenomenon is absent.

Prof. Babinski traced the connexion between the foregoing phenomena and the exaggeration of the tendon reflexes, which also constitutes a sign of disturbance of the pyramidal path. In cerebral hemiplegia, exaggeration of the tendon reflexes may coexist with feebly marked defensive reflexes; sometimes the converse occurs at the onset of a hemiplegia. In spasmodic tabes dorsalis (Erb-Charcot type), where the tendon reflexes are very brisk, reflex flexion of the foot may be feeble or absent. On the other hand, in Friedreich's ataxia the abolition of the tendon reflexes is in marked contrast to the intensity of the defensive reflexes which is often noticeable. The same contrast occurs in ordinary tabes when associated with a pyramidal lesion. In sclerotic lesions of the spinal cord it is common to observe the Babinski toe-phenomenon and the defensive reflex of the foot coexisting with tendon reflexes of moderate intensity. In spastic paraplegia "en flexion," where the defensive reflexes attain their maximum intensity, the tendon reflexes are sometimes exaggerated, but may also be normal or even much diminished. The reflexogenous zone may be more or less widespread, and may extend to the abdomen and thorax. In certain cases its upper limit corresponds to the lower level of a spinal compression. This fact affords us information which, taken together with the level of the anæsthesia, may be of diagnostic value in localising the position of an intraspinal tumour.

Another problem discussed by Prof. Babinski was the difficult question whether the intensity of the defensive reflexes is proportional to the intensity of the lesions. Does it depend on their situation, or on their nature? Generally speaking, the defensive reflexes are more marked in spinal than in cerebral lesions, perhaps because the former are ordinarily bilateral, whereas the latter are usually unilateral. Following total trans-section of the spinal cord, after a period of shock, more or less prolonged, the defensive reflexes may become very marked, at least for a short time; but, in Prof. Babinski's experience, spasmodic paraplegia "en flexion" (termed by certain authors paraplegia of the Babinski type—where the defensive reflexes, extremely marked and persistent, are associated with a fairly obstinate contracture) appears to be associated with lesions which are not accompanied by marked secondary descending degenerations, or even show no secondary degenerations whatever. Defensive reflexes, even when well-marked and associated with severe motor disabilities, do not necessarily signify that the malady is incurable. Thus in some cases of tumour a cure is obtained, with return of the reflexes to normal. In some cases diminution of the defensive reflexes may be taken as a favourable prognostic sign. But in other cases (of total transverse lesion) their diminution after a previous exaggeration may presage the intensification of the malady and may be a terminal phenomenon.

Speaking of the study of total transverse lesions of the spinal cord, Prof. Babinski referred to crossed reactions, and discussed the question whether there are any characteristics indicating that the spinal cord is completely severed. The study of the defensive reflexes during artificial sleep had yielded interesting results. He compared spastic paraplegia "en extension" with spastic paraplegia "en flexion," and the two varieties of contracture termed by him "tendino-reflex" and "cutaneo-reflex" respectively. In discussing the views of English neurologists in

certain vexed questions, he quoted the words "pas toujours du même avis, mais toujours bons amis!"

A few words on defensive reflexes in the upper limb, and a brief rapid summary of certain motor reactions studied by Jarkowski and the lecturer under the name of hyperalgesic reflexes (automatergie), which they differentiate from the defensive reflexes, concluded an admirable address, the main points of which were clearly brought out by lantern slides and demonstrations on patients.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Bootle.

THE Census enumeration gave a population of 76,508 on the night of June 19th, 1921, but the Registrar-General has made an adjustment for holiday movements and estimates the mid-year population of 1921 at 77,800. Dr. F. T. H. Wood, in his annual report for 1921, tells us that the death-rate, 12·98, and the infant mortality-rate, 96, were the lowest ever recorded in Bootle. There was, however, an increase in the "diarrhœa" deaths. Fifty-five children died from this cause under 2 years of age, giving a rate of 26·6 per 1000 births in Bootle, to be compared with 15·5 for England and Wales. The birth-rate was 26·58. The death-rate from tuberculosis was high in 1921, 1·47 from pulmonary tuberculosis and 1·80 from all forms. There has been a rise in each of the last two years and Dr. Wood attributes this to the greater amount of unemployment and the large amount of casual labour in Bootle, but he does not give us the rates among males and females separately. Dr. Wood gives reasons for thinking that the post-war increase of venereal diseases reached its highest point about the end of 1919. One in every three cases ceased attendance before completion of treatment.

Owing to unemployment there has been an increase in the amount of dried milk supplied under the Milk Order, but Dr. Wood is satisfied that this relief has had good results in the prevention of the infant sickness and death formerly associated with long periods of industrial distress. The pathological examination of the fœtuses of still-births has led to the discovery and treatment of several cases of venereal disease in the parents. Seventy-six municipal houses have been completed during the year. The housing committee have had 1167 applications from Bootle residents; in 212 instances the applicant and his family lived in one room and in 463 instances in two rooms. 102 houses have been completed, and 200 have been begun. The original scheme provided for 594 in addition, but, under instructions from the Ministry of Health, the scheme now stands suspended on the completion of the first-mentioned 302 houses, though more are sorely needed.

Ramsgate.

Dr. W. J. Bannister, in his annual report for 1921, gives some of the principal statistics as follows: Estimated population 30,080, rainfall 10·91 inches, sunshine 1998·5 hours, birth-rate 21·39, death-rate 13·3, and infant mortality-rate 82. Scarlet fever of a mild type and diphtheria of a rather severe type were prevalent during the year, the latter causing a death-rate of 0·43 as compared with a rate for England and Wales of 0·12. The hot dry summer affected the diarrhœa-rate under 2 years, which was 31·2 per 1000 births as compared with 15·5 for the whole country. Dr. Bannister refers to the unsatisfactory arrangement by which the borough midwives are supervised by the county. The report on the administration of the Sale of Food and Drugs Act shows that very inadequate penalties are imposed for the adulteration of milk. No houses were erected under a municipal scheme during the year and only 20 by private enterprise. The overcrowding continues.

The school report shows that a good rearrangement has been made, by which each nurse will carry out all the health visiting, school, and infant welfare work in her area, and thus come to have a better knowledge of the families. Of the nine schools only two are "provided" and Dr. Bannister has much to say about the unsatisfactory condition of the "non-provided" schools as to lighting, ventilation, and equipment, and the inconvenient arrangements for medical inspection. A dental scheme has been in operation since December, 1919. Most of the cases of "tonsils and adenoids" have yielded to dental treatment, breathing exercises, &c., without the need for an operation. Out of 148 children requiring treatment, only 19 were operated on. Few facilities exist in the borough for the treatment of children with crippling defects.

Eastbourne.

During 1921 Eastbourne had 2064·8 hours of bright sunshine and a rainfall of 15·79 inches, the latter being only about half the average. It was certainly unfortunate for the accuracy of statistics, especially for the health resorts, that the Census had to be taken in June. The Census population of Eastbourne was 62,030. The Registrar-General, however, after deduction for visitors, only allots 53,600 persons to Eastbourne for statistical purposes. On this basis Dr. W. G. Willoughby, according to his annual report for 1921, thinks this is an underestimate; the birth-rate is 14·8 and the death-rate 11·9. He strongly recommends the council to endeavour to get more houses built. The council has provided 178 houses and has 33 in hand. The infant mortality-rate was 75·4. There is a very complete maternity and child welfare scheme. Dr. Willoughby tells us that the opening of the Infants' Home removed the necessity for boarding out, which had become increasingly difficult to arrange at a reasonable cost. A home help, at a salary of 30*s.* per week, did very useful work during the year. There is one firm supplying "Grade A Certified" milk in Eastbourne. The Sale of Food and Drugs Act report shows that of 92 samples of whole milk taken 11 were found to be adulterated. Dr. Willoughby remarks: "Many samples contained too much dirt, but in the present state of the law, it is not an offence to sell dirty milk."

CONTROL OF VENEREAL DISEASE.

Venereal Diseases in Victoria, Australia.

WE have received from Sir James Barrett, the President of the recently-formed Victorian Branch of the Australian Society for Fighting Venereal Disease, a detailed account of the Venereal Diseases Act of Victoria and its method of administration. He states that with two or three minor drawbacks this Act is admirable as far as legislation goes. Its administration however, leaves a good deal to be desired owing to lack of adequate funds. The Act is administered by the chairman of the Health Commission, Dr. Robertson, who has under his direction a venereal diseases clinic for men. The Government has built quite a suitable building for a venereal diseases clinic for women, which is administered by the staff of the Queen Victoria Hospital for Women. Furthermore, an excellent venereal diseases clinic has recently been established at the Melbourne Hospital by the action of the Red Cross Society through the late Governor-General of Australia, Viscount Novar, and also with the help of private benefactors. The Government, while helpful in this and in some other matters, has not yet appointed a commissioner or amended the Acts as recommended in the report on the legislation relating to venereal disease and the working of the Act, presented to the Premier of Victoria by Sir James Barrett and Major W. T. Condor.[1] By the courtesy of Dr. Robertson, Sir James Barrett has been able to furnish the following particulars showing exactly what has been done

[1] THE LANCET, 1922, i., 384.

with regard to the compulsory provisions of the Act. The following table is self-explanatory :—

Contraventions of the Act and Regulations.

Summary 1, 17 to 30, 6, 21.

(*a*)	Defaulters (i.e., persons who have failed to continue medical treatment until cured)	5639
(*b*)	Defaulters { traced	2793
	{ not traced	2846
(*c*)	Orders issued requiring persons to attend for treatment	62
(*d*)	Prosecutions for disobeying order	5
(*e*)	Prosecutions for illegally treating same	1
(*f*)	Warrants for apprehension issued	3
(*g*)	Statutory declarations as to the existence of disease in others .. { (*a*) made by men ..	6
	{ (*b*) made by women ..	4
(*h*)	Prisoners detained for treatment { males	170
	{ females	129
(*i*)	Infecting persons with venereal disease, prosecutions for	2

Names and addresses of 5639 persons who failed to continue treatment at the prescribed periods were furnished by clinics and private practitioners; 2793 defaulters were traced. These, with the exception of 67, re-continued treatment by suasion. In 62 cases orders to re-attend were found necessary. In 5 cases prosecutions had to be proceeded with to secure re-attendance.

The principal causes of failure to trace defaulters were as follows: (*a*) Fictitious names or addresses or both; (*b*) non-existent addresses to existing streets; (*c*) impersonation—i.e., name and address given corresponded to a person who was not suffering from venereal disease; (*d*) many persons following itinerant callings or being visitors gave correct addresses but had left when inquiry was made.

A chemist was convicted for unlawfully treating a case of venereal disease. Many inquiries have been made into alleged cases of illegal treatment, but sufficient evidence to justify prosecution was not available in any other case. Twelve statutory declarations (eight males and four females) have been made as to the existence of venereal disease in others. In all cases the person declared to be suffering readily consented to examination. In the majority of these cases the declarations were made as the result of quarrels. 299 prisoners (170 males and 129 females) were detained in Pentridge (Prison) for treatment after the expiration of their sentences. Two men suffering from venereal disease were convicted for having subjected women to the risk of infections. One received a sentence of two months, the other of 12 months—the maximum under the Act.

The record furnished shows that although the Acts have not done all that was hoped yet they have been of real direct and indirect service.

In January a conference of medical officers of health and some external representatives was held in Melbourne. The members concluded on the evidence furnished that there was nothing to show that there had been any diminution in venereal diseases in Australia, but they were satisfied of the beneficial results of legislation, largely by reason of the fact that legislation draws public attention to the gravity of the evil. It was felt that legislation, unless backed by overwhelming public opinion, cannot be as effective as it otherwise would be, and this feeling led to the formation of a Victorian Branch of the Australian Society for Fighting Venereal Diseases, with a committee on which all kinds of representative bodies have been invited to take part. The real object of forming such a society is to force people to face the unpleasant facts, and make them as responsible citizens think out a solution for themselves. The Society has only been in existence for six months, but its effects are being felt in many directions. Compulsory impersonal notification has been only a partial success. If, however, public opinion were firm on this question, it might make all the difference.

The Commonwealth subsidises the States with regard to the V.D. problem to the following extent: New South Wales, £4500; Victoria, £3500; Queensland, £3000; Western Australia, £2600; Tasmania, £1000. There is evidence that before long the suppression of venereal diseases will become a live political question which Governments will be compelled to face. In Sir James Barrett's opinion efficient action depends mainly on adequate public education furnished by level-headed medical practitioners. It is significant that 29 of the 66 members of the general committee of the new society are medical men and women. The joint hon. secretaries are Dr. F. L. Apperley and Dr. S. O. Cowen.

Prophylaxis of Venereal Disease.

Much that has lately been written about the prophylaxis of venereal disease does not, for want of a judicial and dispassionate handling of the subject, bring conviction, but this reproach is hardly applicable to a work[2] published by a committee of experts appointed by the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten (D.G.B.G.). The authors, eight in all, have attempted to summarise present knowledge and to indicate the most promising lines to follow in future research. Manteufel, of Berlin, discusses the experimental ground-work on which personal prophylaxis has been based, and he points out the numerous shortcomings of mechanical prophylactic devices. His advocacy of chemical prophylaxis is tempered with the admission that much has yet to be learnt as to its use and efficacy, and he deplores the want of suitable experimental animals for studying the behaviour of the gonococcus. Schumacher also discusses prophylaxis and its technique for men, and Grotjahn brings the discussion back to the value of the mechanical preventive. Experiences in the German navy are dealt with by Uthemann, and Fritz Lesser deals with the prophylaxis of venereal disease in prostitutes. He draws on information obtained in Warsaw during the German occupation, and he describes the regulations enforced by the Germans. A paper by the late Prof. Blaschko reviews the organisation of prophylaxis, and the claims of self-disinfection and skilled disinfection are dealt with very impartially. These measures are, in his opinion, not competitive but complementary; both suffer from very real shortcomings, and both deserve support. So he is in favour of encouraging the public to invest in protective outfits, and also of providing ablution centres in which early, skilled disinfection can be carried out. These centres have proved a definite success in Berlin, as shown by statistics of attendances; and the educational propaganda which is conducted in these centres by printed notices and the like has, in his opinion, been very effective. Prof. E. Galewsky, President of the D.G.B.G., whose criticism of the new venereal legislation in Germany we recently noted,[3] handles prophylaxis in a manner tempered throughout by practical and ethical considerations.

The Northern and Western European Conferences on Venereal Disease.

In the Proceedings of these Conferences, just issued in book form by the League of Red Cross Societies, Geneva, will be found much valuable information regarding the methods which have been adopted or are in contemplation for the reduction of venereal diseases in the participating countries. At the Copenhagen Conference the Scandinavian countries, with Great Britain, Holland, and Germany, were represented, while the Paris Conference was attended by delegates from Belgium, France, Italy, Luxembourg, Portugal, Spain, and Switzerland. It may be observed that in Sweden and in Denmark, where extensive powers are vested in the public health authorities, a considerable proportion of patients attending the public clinics fail to complete their course of treatment. In Denmark difficulty has been experienced in formulating a satisfactory definition of "venereal disease in a communicable form," though several committees have endeavoured to supply one. To the Paris Conference, Prof. Bayet, of Brussels, communicated a paper discussing the advantages and disadvantages of compulsory treatment; he is of opinion that by the provision of readily accessible treatment and by the education of the public better results would be achieved than by the adoption of compulsion. The Conference as a whole agreed with his views, though Prof. Silberschmidt, of Zurich, submitted that a strong case existed for compulsory treatment. At the Copenhagen Conference the Swedish delegates conceded that the strength of their system lay more in the ample provision of facilities for treatment and in their scheme of educa-

[2] Publishers, W. Fiebig, Berlin, 1922.
[3] THE LANCET, April 29th, p. 858.

tion than in compulsion. The paper read by Dr. Marcus on Educational Methods in Sweden and Colonel L. W. Harrison's contribution on the treatment of venereal disease among sailors and the provision at important ports of facilities for treatment should be specially noted. In the Paris report notable contributions are those of Dr. Thibierge on the organisation of treatment, of Madame Avril de Ste Croix on sex education, and of Dr. Levy (Ministry of War) on the methods adopted in the French Army to reduce the incidence of venereal disease. The subject of prophylaxis was discussed at both conferences; while, however, the Copenhagen resolutions do not express any opinion regarding the efficacy or otherwise of self-disinfection, the resolution adopted by the Paris Conference expresses modified approval. Both Conferences are of opinion that the regulation of prostitution is not a practical means of reducing the incidence of venereal disease. The general principle is laid down by both Conferences that the measures adopted should be in all cases administered by health authorities and not by the police.

The League of Red Cross Societies is to be congratulated on the inception of the Conferences, and on the publication of these excellent reports.

TUBERCULOSIS.

The General Practitioner and the Tuberculosis Service.

THE relations in this country between the general practitioner and the whole or part-time officers of tuberculosis services must occasionally be delicate. But feeling will never, let us hope, run as high with us as it appears to do in Chicago, where friction between the two classes has culminated in a public exchange of views. The correspondence is published in the *Bulletin*, City of Chicago Municipal Tuberculosis Sanitarium for March, 1922. To "clear up misunderstandings," physicians practising in Chicago have addressed to Dr. John Dill Robertson, Commissioner of Health, 18 questions dealing with the administration of tuberculosis regulations. Questions, by the way, can be so worded as to convey a good deal of information, and these questions leave no doubt as to the state of ill-suppressed exasperation aroused among general practitioners by what they evidently consider the high-handed action of doctors and nurses in the Chicago Municipal Tuberculosis Service. The first question is: "Are uniform rules applied to all cases of tuberculosis in all parts of the city?" The second question is: "Do visiting tuberculosis nurses or other subordinates in the department have authority to make their own interpretation of the rules, enforce some, ignore others, and make new ones of their own?" The tone and gist of the remaining 16 questions are in conformity with those of the two samples we have just given. Annoyance felt by the questioners comes very plainly to the surface in question 10: "Is there an inference that the dispensary physician is better qualified to diagnose or treat tuberculosis than the average man in general practice?" To make their point perfectly clear, the questioners add: "It is a general belief that many dispensary physicians have sought those positions because they found competition in general practice a little strenuous, could not hold their own, and were glad to accept a meagre-salaried position." Dr. Robertson appends to each of these questions answers which are instructive as showing the extent to which the legislative control of consumptives has been tightened up by what seems to be an ultra-efficient machinery. It appears that when a patient does not obey the rules of the Health Department his home is placarded, and he is forbidden to leave it. During 1921, 26 homes were thus placarded, and it is in connexion with this practice that the question is asked: "How can a patient, able to be about, go to the dispensary or to his own physician? Are they forbidden to seek mild exercise in the sunshine—the parks, for instance?" Another question runs thus: "Is a visiting tuberculosis nurse authorised to threaten forcible transportation in a patrol wagon to the nearest dispensary, when the patient is under competent medical treatment and living up to department rules?" Dragooning tuberculosis out of a community has its difficulties.

Sanatorium Treatment and the Expectation of Life in Pulmonary Tuberculosis.

In a paper on the fate of 1364 cases of tuberculosis two to six years after sanatorium treatment, Dr. W. C. Fowler,[1] of the Derbyshire County Sanatorium, gives some interesting figures. Of the patients in the first stage only 8·5 per cent. were dead at the end of this interval. Although as great a proportion as 24·6 per cent. were in the third stage, the total percentage of patients still at work was 48·6. This percentage was as high as 59·3 per cent. when the third-stage cases, which were sent to the sanatorium for educational rather than curative purposes, were eliminated. First-stage patients had four times as great a chance to live for more than two years as second-stage patients, and nearly nine times as great a chance as third-stage patients. The sinister significance of tubercle bacilli in the sputum is shown in Table 4, according to which the death-rate among sputum-positive cases was five times greater than in sputum-negative cases. Table 5 shows that the highest rate of mortality occurred in the first two years after discharge, and that if a patient survives for five years his chances of continuing to live are very considerable. Dr. Fowler very pertinently remarks that until similar statistics are available for cases not undergoing sanatorium treatment, it is impossible to assess even roughly the benefits thereof. Even then the educational value to the patient and the public of the sanatorium would not become evident. An answer to Dr. Fowler's call for a comparison of sanatorium with non-sanatorium cases is to be found in a monograph recently published by Dr. C. H. Würtzen[2] of the Öresund Hospital in Copenhagen on the clinical course and duration of fatal pulmonary tuberculosis. His material consists of 1032 men, 780 women, and 87 children dying from pulmonary tuberculosis between April, 1906, and Jan. 1st, 1920. The mean duration of life after the onset of the first symptom for adults of both sexes was 35·9 months. This figure was obtained by dividing the total number of months of illness by the number of patients. Among these patients there were 339 who had had the benefit of sanatorium treatment, and though several of them had been too ill at the time of admission to benefit, and had not stayed long in a sanatorium, yet the mean duration of life for this class from the first appearance of symptoms till death was 56·1 months. Dr. Würtzen, like Dr. Fowler, realises that it is impossible to demonstrate by statistics the educational value of the sanatorium.

Notification: Combing Out the Tuberculous.

In the visions of his head upon his bed the thoughtful tuberculosis officer must often wonder whether the organisation of the tuberculosis campaign in Great Britain is calculated to yield the maximum benefit with the minimum expenditure of time, money, and exasperation. If the efficiency of the present system of compulsory notification is to be the test of tuberculosis staff work, it stands convicted of futility; early notification of every case is still an ideal very far from reality. Yet success hinges largely on it. If we are honest enough to admit failure, there is some prospect of "scrapping" a system which has proved unsatisfactory, and of starting afresh on more promising lines. What these should be are indicated by the course adopted at Framingham, U.S.A., and in Finland. Dr. Severi Savonen,[3] a whole-time employee of the Finnish National Association for Combating Tuberculosis, has lately given an account of how he

[1] Tubercle, April, 1922.
[2] A Contribution to Our Knowledge of the Clinical Course and Duration of Fatal Lung Tuberculosis. 1922. Gyldendal, 11, Hanover-square, London. 2*s.* 6*d.*
[3] Finska Läkaresällskapets Handlingar, March and April, 1922.

sets to work to comb out early cases of pulmonary tuberculosis. In a large country area he takes one parish after another, forestalling his campaign in each by preliminary notices in the local press about the objects of the coming free medical examinations. Then a popular lecture or two on tuberculosis are given, and again the advantages of free medical examinations are emphasised. Then four specially trained nurses are unleashed; they visit every home in the parish, inquire about suspicious symptoms, such as chronic cough, among the members of each family, and promise free medical examination to every suspect. Dr. Savonen has combed eight parishes in this manner; in a total population of 57,009, his nurses found 7854 suspects to whom letters were addressed offering free medical examinations. The acceptances of this offer numbered 5937, and in 1034 cases pulmonary tuberculosis was found. Thus, 1·81 per cent. of the total population proved to be tuberculous. Dr. Savonen took great care not to alienate the general practitioner by interfering with non-tuberculous cases, and as the tuberculous cases were referred to the general practitioner for future supervision and dispensary treatment, coöperation proved to be smoothly effective. Obviously the success of any scheme for securing early diagnosis and notification depends on its being made worth while to the person notified. And so long as the public and general practitioners associate notification with harassing by minor health officials, with negligible compensatory advantages, notification is going to be more or less of a dead letter.

Tuberculosis Care Committees.

A circular letter has been issued to metropolitan borough councils by the Minister of Health giving certain suggestions for the guidance of borough councils in framing proposals for the organisation of care committees as part of the machinery of dispensary schemes. The composition of care committees is discussed, and also their functions. It is emphasised that the unit with which the care committee deals should be the family and not the individual patient. The early consideration of the economic effect of the occurrence of tuberculosis in a household is as important as the early diagnosis of disease in the individual. The primary duty, therefore, of the committee should be to consider the economic position of the family of every patient suffering from tuberculosis as soon as he comes within the purview of the dispensary scheme, and to render such advice and assistance as the circumstances of the case dictate, with a view to enabling the family to adjust their circumstances to the new conditions, to maintain their economic independence, and to derive the fullest possible advantage from the medical treatment prescribed. Reference is made to certain kinds of assistance that may be needed in particular cases—viz., additional food, change of air, clothing, better home conditions, more suitable occupation, and financial assistance. In the opinion of the Minister the latter can be better provided through the agency of existing charitable or public organisations than from a special fund administered by the care committee, and it is the duty of this committee to bring the family into touch with the appropriate organisation.

A subsidiary function of a care committee is to undertake, on behalf of the London County Council, the assessment of charges made in respect of residential treatment afforded to children and to adults whose income exceeds a certain figure. It is pointed out that the work of the care committee will be relatively ineffective unless close and constant coöperation is preserved between the committee and the staff of the tuberculosis dispensary. The tuberculosis officer should therefore regularly attend the meetings of the care committee.

The borough councils are asked to give early consideration to the suggestions made, with a view to formulating proposals for the establishment of a permanent after-care organisation in each borough.

CZECHO-SLOVAKIA.

(FROM OUR OWN CORRESPONDENT.)

A Chair of Social Medicine.

ON May 6th Dr. Frantisek Hamza held his opening lecture in Brno as the first professor of social medicine at Brno University. This is the first chair of social medicine to be established in the medical faculties of Czecho-Slovakia. Prof. Hamza was at one time the chief of the section of social pathology in the Ministry of Health, which he created in 1919. He was formerly a local health officer in eastern Bohemia, and built up in his community in the course of years a large institution for the treatment of scrofulous children. This institution has now over 400 beds, and is the second largest institution of its kind on the continent. Prof. Hamza is also the creator of the Masaryk League against tuberculosis, which has now some 400 local branches all over the Republic, with about 50 dispensaries, and has written the first book on social medicine to be published in the Czech language. His opening lecture in Brno was attended by all the members of the teaching staff of the medical faculty, by representatives of the Ministry of Health and of the important health agencies.

National Council of Social Hygiene.

The National Council of Social Hygiene in Czecho-Slovakia, which is a federation of eight of the most prominent private social and health agencies in the country, held its spring meeting on May 6th. The question of common appeals for funds by the participating organisations formed the chief point of discussion. A finance committee was elected in order to work out the technical details of an appeal which will be made in the spring of 1923. Another propaganda campaign is being prepared for the autumn of 1923 which will be for the benefit of the organisations which care for children. The Masaryk League against tuberculosis proposed the creation of a common building for all the associations affiliated to the Council. This would make possible a coöperation in different branches of office administration. The suggestion was adopted and referred to a special technical committee which will work out the project in detail. For the spring of 1923 a general congress of all social and public health workers is being planned in Prague, and steps will be taken to arrange for all the affiliated organisations to hold their annual meetings in Prague at the same time. This will save much money to the organisations which very frequently send the same people to Prague to attend the annual meetings of different associations. It will also make it possible to assemble all the delegates at one meeting where the methods for better coördination and coöperation will be discussed. A resolution was also adopted recommending to the associations to use the same premises for tuberculosis dispensaries and venereal diseases clinics where possible, for economical reasons, though it was advised that the same rooms should not be used for a children's clinic. Finally an association for combating prostitution and known by the name Zachrana was accepted as a new branch of the National Council of Social Hygiene.

Clean Milk Exhibition.

The Ministry of Health has prepared a Clean Milk Exhibition, on the lines of the exhibition held last year dealing with the spread and prevention of typhoid. It has been open during the Agricultural Exhibition in Prague in May. The importance to the health of the whole community, and especially of children, of clean production of the milk was stressed, and the value of milk as a food was emphasised. In the centre of the exhibition were placed models showing the quantity and cost of other foods compared with a bottle of milk. The right wing of the exhibition displayed the many dangers besetting a community which uses unclean milk, while the left wing demonstrated the rôle played by clean milk in the nutri-

tion of infants. A pamphlet on clean milk was distributed to the visitors. In order to attract more attention on the part of the pupils at the State schools, four trained nurses were present to explain to the visitors anything which they did not understand. This seems to have been a very happy arrangement. The exhibition was prepared in the Ministry by the Division for the Study and Reform of Health Activities, which is hoping to develop a separate independent division in the Ministry for Public Health Education.

The Services.

THE PARKES AND THE ALEXANDER MEMORIAL PRIZES.

THE Parkes Prize, open to officers of the Royal Navy, Army, and Indian Army of executive rank on full pay, other than professors and assistant professors at the Royal Naval Medical School, and of the Royal Army Medical College, is of the value of 75 guineas in money and a gold medal, and the subject for the next competition will be the Principles of the Prophylaxis of Malaria with the Administrative and other Measures for their Application on Active Service. The Alexander Prize, consisting of £50 and a gold medal, is open to executive officers of the Royal Army Medical Corps on full pay, other than professors and assistant professors at the Royal Army Medical College. The subject for the forthcoming competition will be Secondary Wound Shock; its Causation, Prevention, and Treatment. Essays should be sent to the Secretary of the Prize Committee for the respective competitions, Royal Army Medical College, Millbank, S.W. 1, on or before August 1st, 1923. Each essay is to have a motto, and be accompanied by a sealed envelope bearing the same motto and containing the name of the competitor.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. H. Huskinson is placed on the retired list with rank of Surg. Capt.

Surg. Lt. A. W. North to be Surg. Lt.-Comdr.

G. Kirker and A. E. Phillips to be Surg. Lieuts.

ROYAL ARMY MEDICAL CORPS.

Capt. and Bt. Maj. W. McNaughtan to be temp. Maj. whilst empld. as Dep. Asst. Dir. of Pathology.

Capt. T. F. Kennedy to be temp. Maj. whilst empld. as Dep. Asst. Dir. of Hygiene.

Temp. Capt. J. A. Marsden relinquishes the temp. rank of Maj.

The undermentioned temp. Capts. relinquish their commns. and retain the rank of Capt.: W. E. C. Musson, S. Oliver (on account of ill-health), R. S. Aspinall, P. J. O'Sullivan, A. L. Paliologus, A. J. Ireland, and J. Wyler.

Temp. Lt. D. Loughridge relinquishes his commn. and retains the rank of Lt.

ARMY DENTAL CORPS.

Lt. J. Wren to be Capt.

SPECIAL RESERVE OF OFFICERS.

Capt. W. M. Dickson relinquishes his commn. and is granted the rank of Maj.

TERRITORIAL ARMY.

Lt. G. Eager to be Capt.

Lt. G. V. Davies (late R.A.M.C., Spec. Res.) to be Lt.

The undermentioned, having attained the age limit, are retired, and retain their rank except where otherwise stated: Maj. P. Howie, Capts. W. E. Alston and C. Cameron (granted the rank of Lt.-Col.), Capts. G. Davidson, R. R. Macnicol, and T. S. Slessor.

Capt. J. Walker relinquishes his commn. and retains the rank of Capt.

Supernumerary for Service with the O.T.C.: Maj. H. B. Roderick, from 1st E. Genl. Hosp., to be Maj. for service with the Cambridge Univ. Cont., Sen. Div., O.T.C.

TERRITORIAL ARMY RESERVE.

Capts. C. H. Gibbs and H. G. Moss, from 1st Lond. (City of London) San. Co., to be Capts.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions as Flying Officers: W. E. Barnes and C. A. Lindup.

Flight Lt. C. P. Barber is granted a short service commission, retaining his present substantive rank and seniority.

Correspondence.

"Audi alteram partem."

A STANDARD TEXT-BOOK OF SURGERY FOR EXAMINATION PURPOSES.

To the Editor of THE LANCET.

SIR,—Prof. C. A. Morton's letter in THE LANCET of May 27th opens up so many questions, and the adoption of its recommendations would lead to such far-reaching consequences, that it cannot pass without comment. His reasoning is based upon the admitted fact that there are a number of discrepancies in the statements made in different widely read text-books of surgery; from this he assumes that a candidate who had read one text-book and recited the views expressed therein would receive little credit from an examiner unacquainted with this particular book or in non-agreement with its author's teaching. Therefore, to eliminate this handicap, Prof. Morton would have a standard text-book written, which, after the submission of its proofs to an editorial committee of the Royal College of Surgeons for approval, should represent what the student up for a pass examination would be expected to know. There is so much involved in this argument, so many assumptions tacitly made, erroneously as I believe, so many drawbacks to bringing such a plan into being, that it is rather perplexing to decide where to begin to refute it.

Let us consider first whether this reasoning is erected upon a sound basis. It is true that there are many different, sometimes even contradictory, statements in the several text-books, but let us not lose our mental values in reflecting upon this phenomenon, for where divergent views are held, we shall always find that knowledge is incomplete upon this particular subject and so a final decision is impossible. The fundamental, irrefutable facts of surgery are always set forth identically the same in all text-books. It is always recommended that an acute abscess should be drained and that every effort should be made to avoid open drainage of a tuberculous abscess, but we can well understand, how in the transition period from the time when all abscesses, whether acute or chronic, were evacuated and drained, some of the text-books of those days recommended aspiration of a tuberculous abscess, whilst others taught that it should be treated openly. This discrepancy has disappeared with more exact knowledge. And so it will be with many of the examples given by Prof. Morton. To take one only, the treatment of periosteal sarcoma, where a divergence of opinion is fraught with great consequence to the patient. The prognosis after amputation is admittedly extremely bad, but not absolutely hopeless. And how wrong it would be for a committee of surgeons to dogmatise on this question is shown by the remarkable 14-year recovery after amputation for osteogenic sarcoma reported by E. A. Wells,[1] and three other cures are recorded.

The next question raised is that the candidate may likely not get fair treatment by a biased examiner, that is, he will not get credit for an honest effort made to master a particular subject hould he fortuitously have chosen a book with the author of which the examiner does not agree. Now where there is a difference of opinion upon some grave issue, as to whether or not, for example, the stomach should be excised for simple ulcer, or whether or not the thyroid gland should be removed in Graves's disease, the man who holds the most pronounced views upon this subject will be a pioneer surgeon of vast experience of the disease in question, and he will be the very observer who will be prone to view with every consideration all aspects of the subject. A candidate is not likely to suffer at his hands. Moreover, the interests of the candidate are further protected by the fact that he

[1] Surg., Gynec., Obstet., xxiv., 5, 1922, p. 698.

very seldom ever meets a single examiner. Two examiners test him in collaboration. Surgeons do not differ greatly from other specimens of humanity, and now and then one is to be met who is almost fanatical in his convictions, but it is inconceivable that any candidate's chances of success would be imperilled because, of several hypotheses concerning the more extensive fracturing of the inner table of the skull, he put forward one which is not believed by the examiner. It is the fact of this greater splintering of the inner table which is so important from the point of view of treatment, not the precise method of production.

Finally, we come to the proposal for a standard text-book. I pass over the difficulty of its production; the discovery of an individual who would be content to have his book scrutinised, altered, censored by the committee set up, the selection of the members of this committee, and a host of others, and ask whether it would be in the interests of surgery, to the advantage of the future practitioner, the benefit of the community that one text-book should be made the standard. The fact that there are divergent statements in many subjects is a demonstration in itself that in these matters there is no generally accepted view. How, then, are we to choose one? And if we select wrongly, how we shall perpetuate the error, and delay the discovery of the truth by stifling the spirit of inquiry. It is of a very precious educative value that a student should listen to the varying teaching of several surgeons. Only then does he realise that there is not the finality of knowledge in surgery that he has met with in the elements of chemical and physical science. Make one standard text-book, and, so crowded is that curriculum, scarcely a student will read any other; the demand will cease and other text-books will vanish. Life would, indeed, be dull to the student if he could no longer play off one teacher against another. There would result not only a stereotyped practitioner, but a monotonously conventional, sterile, unstimulating, excessively dull teaching surgeon. Life is bad enough for the modern student as it is. Let us preserve him from this.

I am, Sir, yours faithfully,

CHARLES A. PANNETT.

London, May 29th, 1922.

HEART-BLOCK ASSOCIATED WITH CALCAREOUS DISEASE OF THE AORTIC VALVE.

To the Editor of THE LANCET.

SIR,—The paper by Sir Sydney Russell-Wells and Dr. Harold Wiltshire in THE LANCET of May 20th illustrates one of the conditions of morbid disease of the heart concerning which it has always appeared to me that clinicians may not have very clear ideas. As a medical student, although trained in the school where there had been such accurate morbid anatomists as Sir Samuel Wilks and Dr. Walter Moxon, I received the impression that atheroma of the aortic valve and atheromatous disease of the aorta, if not each part of the same condition, were at least closely related. When, however, I was in a position to make a considerable number of post-mortem examinations it soon became evident that the impression I had received was wrong. Where calcareous disease of the aortic valve was present the aorta was almost invariably quite healthy, and when, on the other hand, there was extensive disease of the aorta, associated with disease of the aortic valve, the disease of the aortic cusps was usually fibroid in character.

The point, however, to which I especially wish to draw attention is that the calcareous disease is often locally infective so far as neighbouring endocardial or myocardial tissues are concerned. Invading finger-like processes may pass from the aortic valve into the large flap of the mitral valve or more commonly into the inter-ventricular septum. Since this is a feature of calcareous disease of the aortic valve, it seems to me that it is a mistake to consider the term "infective endocarditis," as we generally use it, should be applied to the case recorded by Sir Sydney Russell-Wells and Dr. Wiltshire.

To return to the form of disease of the aortic valve associated with disease of the aorta, small calcareous spots or nodules may be present, but shrinking and deformity of the cusps produced by contraction of fibroid tissue is the essential feature. The disease of the aorta associated with fibroid disease of the aortic valve is, without doubt, syphilitic in nature, while calcareous disease of the valve has nothing to do with syphilis. For example, I have seen death from calcareous disease of the aortic valve in a middle-aged unmarried woman with an unruptured hymen. It may be added that the form of calcareous disease present in the heart which invades surrounding structures generally arises in the aortic valve, but calcareous changes may occur in the thickened mitral valve of mitral stenosis, and I have known a calcareous process, starting from the valve in a case of old standing rheumatic mitral stenosis, invade the septum of the ventricles. While, however, calcareous changes must be considered to be a secondary condition in rheumatic disease of the mitral valve, in the aortic valve, although a narrow margin of inflammation generally borders the calcareous masses, these calcareous masses, to the naked eye, may appear to be the whole disease.

I am, Sir, yours faithfully,

Norwich, May 25th, 1922. THEODORE FISHER.

AN EASY METHOD OF FINDING TUBERCLE BACILLI IN SPUTUM.

To the Editor of THE LANCET.

SIR,—With reference to the paragraph under the above heading in your issue of May 27th, will you allow me to say that the *new* method just published by Prof. Pane seems to be essentially the same as that submitted by me to the Medico-Chirurgical Society of Edinburgh in 1886,[1] and regularly taught to my students.

The method was introduced in order to overcome the "difficulty due to (*a*) the comparative paucity of the micro-organisms in relation to the other cell elements and the surrounding mucus, and (*b*) the extremely tenacious character of the mucus, which renders it no easy matter to obtain a suitably thin and equal layer on the cover-glass. . . . The method will be found to obviate both these inconveniences. It has the advantage, moreover, that in doubtful cases it renders the demonstration a matter of greater certainty. The principle is essentially that of concentration, the concentration being obtained by a double process of incubation and precipitation. . . . The sputum of from 12 to 24 hours is carefully collected and kept as free from the access of foreign particles as may be. It is then exposed in a beaker to the influence of a gentle moist heat for 24 hours. The mouth of the vessel should be protected with a thin piece of gauze. The continuous exposure may be most conveniently managed in a Koch's steam sterilizer. . . . In practice I have found that the temperature best suited for the process ranges from 36° C.–39° C. . . . At the end of 24 hours it will be found that the appearance of the sputum has altered considerably. The heavier cell elements have separated and become deposited at the bottom of the vessel, while above this is a uniform layer of a comparatively clear fluid. . . . The clear supernatant fluid may be decanted, or by means of a pipette a drop of the thick deposit may be removed from below and placed on a cover-glass. . . . Microscopic examination then reveals the advantage of the procedure. The heavier cell elements in their deposition have carried down the micro-organismal elements, so that the drop contains these latter in relatively increased number. I have found in some instances that the consequent multiplication has been five times or even more."

In the case of more dense sputa I have been in the habit of adding a volume of slightly alkalised water

[1] Transactions of the Medico-Chirurgical Society of Edinburgh, vol. v., 1885-86.

previous to incubation. The method as first described has been variously modified by a succession of workers, especially in Germany, the essentials of the procedure remaining the same.

I am, Sir, yours faithfully,

Edinburgh, May 27th, 1922. R. W. PHILIP.

TRICHOCEPHALUS (NOT TRICOCEPHALUS) *DISPAR*.

To the Editor of THE LANCET.

SIR,—In view of Mr. H. A. Lediard's inquiry in THE LANCET for May 20th as regards treatment for infestation with the above worm (now better known as *Trichuris trichiura*) it may be of interest to state that in Colombia and Venezuela the latex of *Ficus laurifolia* or *F. glabrata*, commonly known as *leche de higueron*, is regarded as a specific. When in these countries in 1914 I found it largely employed both for the treatment of whip-worm and hook-worm infection, but it is much more efficacious in the former.

Mr. Lediard will find a review of a recent paper by Montoya on the subject in the *Tropical Diseases Bulletin* for April, 1922, but I fear he will have difficulty in obtaining an active preparation of the latex in this country. There is an old specimen of it in our museum here. Higueron latex certainly appears to merit greater attention than has hitherto been paid to it outside the limits of South and Central America. Unfortunately, the latex ferments readily and when used fresh only keeps for four or five days. Spruit tried the drug in Costa Rica, the fresh juice and sap being preserved in an equal quantity of chloroform. He also found that the preserved sap when stored in an ice-box could be kept for 34 days without undergoing fermentation. It is to be feared that at present the latex can only be used to advantage in countries where the tree which produces it grows. The late Dr. Sandwith kindly tried samples which I gave him in cases of ankylostomiasis but found them inert.

Possibly, if an active principle, which Montoya thinks is present in the ammoniacal substance which the latex contains, could be isolated, we might find ourselves in possession of a valuable vermifuge for those cases which Mr. Lediard finds difficult to treat.

I am, Sir, yours faithfully,

ANDREW BALFOUR.

Wellcome Bureau of Scientific Research, May 24th, 1922.

PS.—I may add that Major Mouat-Biggs had a short note on the subject in the Transactions of the Society of Tropical Medicine and Hygiene, vol. viii., 1914–15, p. 216.

THE WOOD-HILL FUND.

To the Editor of THE LANCET.

SIR,—With the approval of the other signatories to the letter of appeal for this Fund which appeared in your issue of Dec. 3rd last, Sir Robert Jones, Sir John Lynn-Thomas, Mr. George Gask, Mr. R. C. Elmslie, and Dr. Wilson Tyson, I am writing to say that it has been decided to close the Fund on June 30th. Will those medical practitioners and societies who have not, up to the present, subscribed, but who intend to do so, be good enough to forward their contributions to me with as little delay as possible. The following is the ninth list of subscriptions to the Fund.

I am, Sir, yours faithfully,

HAMILTON A. BALLANCE,
Hon. Treasurer.

All Saints Green, Norwich, May 27th, 1922.

	£	s.	d.
Amount previously acknowledged	1428	8	10
Medical practitioners in Croydon (per Mr. Gervase E. Newby, O.B.E.): Mr. Elwell, £2 2s.; Drs. Wayte, Cressy, Richards, Genge, Scudamore, Partridge, Hamond, Collyer, Redfern, Adams, Nicholls, Phillips, Poulett Harris, Lewin, Allan, Thompson, Pinkerton, Air, Messrs. Cowell, Collard, Neve and Newby, each £1 1s.; Dr. Everington (2nd donation) and Dr. J. Wayte, each 10s. 6d.	26	5	0
Members of the Newcastle-upon-Tyne Division of the B.M.A. (per Dr. E. Farquhar Murray, Hon. Sec.): Mr. H. B. Angus, Mr. J. W. Leech, Dr. S. S. Whillis, each £2 2s.; Dr. A. Parkin, Mr. R. J. Willan, each £1 1s.; Dr. A. Campbell, Dr. L. S. Davison, each £1; Mr. J. H. Barclay, Drs. C. Barrowman, Mabel Campbell, R. Dagger, James Don, Mr. Hamilton Drummond, Drs. T. C. Grey, George Hall, W. T. Hall, James Hudson, A. Livingstone, P. A. Mackay, Neil Maclay, Farquhar Murray, R. W. Nevin, Wells Patterson, Stanley Robson, H. L. Rutter, Andrew Smith, Senr., S. Worthington, each, 10s. 6d.; Dr. J. A. Sacco, 10s.	21	8	0
Members of the North Lancs and South Westmorland Branch of the B.M.A. (per Dr. John Livingston, Hon. Sec.): Mr. A. S. Barling, President of the Branch; Dr. Fawcett, each, £1 1s.; Drs. Alexander, Allan, Ashburner, Bayne, Blacklee, Bowman, Boyde, Carson, Cochrane, Collins, Craig, Cross, F. E. Daniel, Elliott, Livingston, Reed, Roberts, Rutherford, Sansom, Somervell, Thompson, Ware, Wilson, each 10s. 6d.	14	3	6
Members of the Hartlepools Division of the B.M.A., Hon. Sec., Dr. J. E. Mitchell (per Dr. Alfred Cox, O.B.E.)	12	0	0
Torquay Medical Society (per Dr. A. Wightwick, Hon. Sec.)	10	10	0
Members of the City Division of the B.M.A., Hon. Sec., Dr. H. Cuthbert Dixon (per Dr. Alfred Cox): Drs. John Adams, James Turtle, W. E. A. Worley, H. C. Dixon, C. E. Evans, J. L. Hamilton, H. L. Hands, V. Feldman, each £1 1s.	8	8	0
Members of the East Dulwich Medical Society (per Dr. John Heard, Hon. Sec.): Drs. Langford, Robinson, Lea, Reynolds, Scatliff, Nimmo, Cox, Batten, Morton, and Heard	6	3	0
Members of the Consett Division of the B.M.A. (per Dr. J. Charles, Hon. Sec.) Drs. E. G. D. Benson, A. Dewar, R. Parry, W. M. Morison, J. Charles, Fraser, Mackenzie, Murray, Gemmell, Fox, Cook, W. A. Benson, each 10s.	6	0	0
Hon. Medical Staff of Wolverhampton and Staffordshire General Hospital (per Mr. W. H. Harper, House Governor): Dr. James R. Whitwell, Melton, Suffolk .. .. .. each	5	5	0
Sir John Atkins, K.C.M.G., London	5	0	0
Bucks Division of the B.M.A. (per Dr. Thomas Perrin, Hon. Sec.)	3	0	0
Further donation from members of the Derby Medical Society, making a total of £24 5s. (see list published on March 25th) (per Dr. Charles E. Potter, Hon. Sec.)	2	10	0
Further contribution from the Reigate Division of the B.M.A. (see list published Feb. 4th) (per Dr. T. Anstey-Chave, Hon. Sec.)	2	9	0
Dr. W. E. H. Banks, Falmouth; Dr. A. Graham-Stewart, Margate; Lieut.-Colonel J. W. F. Rait, I.M.S., Radlett; Dr. R. N. Highmoor, Litcham each	2	2	0
Dr. J. D. R. Monro, Muswell Hill, £1 1s.; Dr. H. C. Staunton, Hornsey, 10s. (per Dr. J. R. Richmond Ritchie, Hon. Sec., North Middlesex Division of the B.M.A.)	1	11	0
Dr. R. W. Merrick, West Kensington; "Anon.," Hampstead; "X.Y.Z.," Cambridge; Dr. Samuel A. Lane, Bognor; Dr. E. C. Mackay (per THE LANCET), St. Leonards-on-Sea .. .. each	1	1	0
Further contribution from S.E. Counties of Scotland Division of the B.M.A. (see list published April 29th) (per Dr. M. J. Oliver, Hon. Sec.): Drs. Menzies and Hiddleston, Selkirk, each 5s.	0	10	0
Dr. H. S. Hollis, Hove	0	10	0
Further contribution from Isle of Ely Division of the B.M.A. (see list published April 29th) (per Mr. A. C. S. Waters, Hon. Sec.): Dr. Percy Moxey, March	0	5	0

THE ROYAL SOCIETY OF MEDICINE: A UTOPIAN PROPOSAL.

To the Editor of THE LANCET.

SIR,—At the time when it was effected I was keenly interested in the amalgamation of the London medical societies, and hoped for great things from it. I feel impelled after 15 years' experience to express my profound regret that it has, or so it seems to me, entirely failed on the scientific side, though from a material or business point of view it has been a great success—i.e., from the point of view of those Fellows whose subscriptions to various societies before the amalgamation in some cases exceeded 10 and 12 guineas, and were reduced to three guineas. Especially lately has the failure been emphasised by the constant addition of new sections which are for all scientific purposes new societies. At a professional gathering the other day I heard it even suggested that a laryngo-proctological section should be formed!

Medicine had and has much to gain by frank discussion of important questions from every point

of view, and this it was hoped would be facilitated by the amalgamation. I almost think it would be better to suppress all the sections and have one body of Fellows, with as many specialist committees as are thought desirable, whose duty it would be to watch each specialty and from time to time organise discussions and secure papers on special subjects to be read before and discussed by the whole body. Personally I should go further and make these discussions open, and have no printed verbatim reports either in the journals or elsewhere, and instead of the printed reports which now appear (advertising the speakers) I should have carefully edited abstracts of the discussions, leaving out all references to names, and only giving a thoughtful résumé of the best that was said and the conclusions arrived at.

This is, perhaps, Utopian, but surely the Royal Society of Medicine should be strong enough to aim at the best, and by "best" I mean the best possible for medicine and surgery, irrespective of individual interests. Is it vain to hope for such a thing, or that a spiritual amalgamator may be discovered? The legitimate advertising side need not be entirely neglected, but should be confined to carefully considered and strictly-censored papers, and the *Proceedings* of the Society should be limited to the publication of such, together with the anonymous epitomes of discussions I have suggested.

I am, Sir, yours faithfully,

May 23rd, 1922. PRO BONO MEDICO.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, MAY 25TH.

THE VOLUNTARY HOSPITALS COMMISSION.

THE EARL of MALMESBURY asked the Government (1) what progress the Voluntary Hospitals Commission had made in appointing local voluntary hospital committees in accordance with the report of Lord Cave's Committee; and (2) what information the Voluntary Hospitals Commission had of the general financial position of the hospitals and how far they have proceeded in the distribution of the Government grant of £500,000.

The EARL of ONSLOW (Parliamentary Secretary to the Ministry of Health), in reply, said that it was proposed to constitute in all 62 committees throughout England, Scotland, and Wales. Of this number 52 were already formed, and were actually functioning, and six would very soon be ready. The reason why they had not commenced work was that all the nominations had not been completed. In two cases, one in England and the other in Scotland, no committees were to be formed because the local conditions were such that it was not necessary. There was only one hospital in one county. In two others no decision had been reached. Some of these committees had been in existence for a considerable time, but the majority had only begun to work in the last few months. Many of them had sent in valuable reports, though sufficient information had not been received about all the small areas to enable them to make a comprehensive survey of an authoritative nature of the situation throughout the country. King Edward's Fund had accepted, in accordance with the recommendation of Lord Cave's Committee, the position of voluntary hospitals committee for London, so that in that respect the metropolitan area was directly represented on the Commission. The other committees were not formed when the Commission was appointed, so that there could be no question about their being represented thereon, but now that they were functioning the question was one of great importance, and had not been lost sight of. A conference of all members of local committees would meet in London on July 18th and 19th at which a full discussion of this question would be possible. Personally he thought it was important to avoid making the Commission so large as to be an unwieldy body.

Government Grants to Hospitals.

As regarded finance, the original Government grant was £500,000. Up to the present they had spent £142,738, made up as follows: In London, £103,450; and in the provinces, £39,288. The reason why London had received so considerable a share of this sum was that they had been able to get to work so much more quickly. The London grants so far had been mainly—and, in fact, almost entirely—emergency grants to hospitals who had exhausted their realisable assets. He was glad to say that these grants had enabled beds in London which were closed to be reopened, and had prevented the threatened closure of others. The Commission had decided as a general principle not to make grants in excess of half the deficit on the ordinary maintenance expenditure for the year ending Dec. 31st, 1921, and those grants were to be made pound for pound against new money received or in sight. They were just issuing a new circular explaining at length the definition of money received and in sight. The Government grant of £500,000 was based on the estimate of the Cave Report, that the total deficit on maintenance account for 1921 would be approximately the same as in 1920, namely, £1,000,000 for the whole country. But the reports so far almost all showed that in all probability the 1921 deficit would be considerably less. The 1920 deficit in London amounted to £463,000, and the estimate was that the deficit for 1921 would be £140,000 less. The same sort of figures were reaching them from other localities, and therefore he was in great hopes that the deficit for 1921 would show a considerable shrinkage on that for 1920. They might hope that their finances would allow them to give some assistance in respect of accumulated deficits, though he was not able to make any promise on that point.

Hospital Claims.

The hospitals had been somewhat dilatory in sending in their claims. He understood that they had found some difficulty in making up their claims, because they did not make up their accounts until the beginning of the year when the auditors' officers were very busy. He hoped that the claims would be got in soon, so that the distribution might be proceeded with. There was one point which the hospitals would do well to consider. An arrangement was made last year with approved societies for payments to hospitals in respect of their members. They had had representations from the societies that the claims were not coming in from the hospitals. He hoped, and the Commission hoped, that all hospitals would ask any patients whether they belonged to a society, and if so, whether it was one of those societies as to which the hospital had to make a claim; also that the hospitals, with as little delay as possible, would make the claims which they were entitled to make, and which the societies were desirous of meeting in respect of the treatment of these patients. While the position of the hospitals was improving, the deficits were still very formidable, and no effort must be relaxed in order to put the hospitals again on to their pre-war footing. Coöperation, he was sure, was the only way in which that might be successfully done—coöperation to reduce expenditure, to increase income, and to prevent overlapping and waste. Certain hospitals were proposing schemes for extension. He felt that these should be very carefully examined. Hospitals should not only see that they could pay their way and carry on as at present, but they should also see that their income was sufficient to pay for any increased expenses of maintenance which the extension would necessitate. Actual coöperation in the way of utilising Poor-law infirmaries had been undertaken in certain places; for instance, in Paddington and Wolverhampton. Paddington Infirmary was an admirable place, and worked with the local hospital in a magnificent manner.

Income of the Hospitals Well Maintained.

Now that local committees had been formed they could judge of what was required in the way of beds, and if the Poor-law authorities were willing to meet them they could perhaps arrive at some scheme which would utilise any vacant beds there might be in the infirmaries. So far as his information went, the income of hospitals was well maintained, although in a few cases there had been a falling off, especially in areas where there had been strikes. Expenditure was falling. Food, a very considerable item in hospital expenditure, was coming down considerably, but drugs and dressings still remained at a higher figure than had been hoped and anticipated. In the Sheffield area very remarkable work had been accomplished under the scheme of mass contribution. The success of the scheme at Oxford was also worthy of note. Hampshire, he believed, had already made a great success of the scheme. In Manchester they had made an arrangement with the Hospital Saturday Fund for a combined collection and the organisation of mass contributions. These schemes were of the utmost value, and were to be recommended to the consideration of committees. He hoped that the London collection on Empire Day would realise all the new money that it was necessary to obtain from the funds of the Commission.

The EARL of MALMESBURY thanked the noble Earl for the statement he had made, and congratulated him upon the success of the scheme so far.

HOUSE OF COMMONS.

TUESDAY, MAY 23RD.

Nurses and Unemployment Insurance.

Captain WEDGWOOD BENN asked the Minister of Labour whether the provision for excluding nurses from the operation of the Unemployment Insurance Act could be made retrospective, in view both of the difficulties of collecting arrears of contributions and of the fact that the insurance was of no practical value to nurses.—Dr. MACNAMARA replied: I would refer my hon. and gallant friend to the report of the proceedings of Standing Committee B for Tuesday, April 4th, from which it will be seen that in accepting the amendment in committee that unemployment insurance contributions should cease to be payable in respect of nurses, I made it clear that in order to allow a reasonable interval before payment of benefit is stopped in the cases of the nurses, numbering several hundreds, who are unemployed, I could not agree to the new exception taking effect before July 1st. I added that I had no doubt that as the main request of the nurses had been met I should find general acceptance of my decision that contributions should be paid up to July 1st. In these circumstances I could not agree to make the exception retrospective, which in any event would require legislation.

An Officer's Wound Pension.

Sir CECIL BECK asked the Minister of Pensions whether the wound pension awarded by the medical appeal board to Lieut.-Colonel C. M. G. Rudkin, D.S.O., in May, 1919, had now been stopped, although Colonel Rudkin considered that he had had no opportunity of having his case reconsidered by a further medical appeal board; and would he make inquiries.—Mr. MACPHERSON replied: The withdrawal of this officer's wound pension followed the considered opinion of my medical advisers, formed after a period of hospital observation and an examination by a board of selected specialists that the existing disability is not due to the wound. Colonel Rudkin has, however, been informed that if he so desires he will be given an opportunity of being re-examined by a Special Wounds Board after a further period of hospital observation.

Pension Appeal Tribunal Cases.

Mr. HAYDAY asked the Minister of Pensions the total number of appeal cases heard by the pensions appeal tribunals during the year ending December, 1921, together with a summary of the decisions.—Sir E. POLLOCK (Attorney-General) replied: The total number of appeal cases heard by the pensions appeal tribunals for England and Wales during the year ending Dec. 31st, 1921, was 36,329. Of these, 9,877 were allowed, 26,141 disallowed, and 311 were withdrawn by the appellants.

Mr. HAYDAY also asked the Minister of Pensions the number of pension appeal cases heard before the pensions appeal tribunal in Nottingham on Tuesday, March 16th, 1922, together with the decision in each case.—Sir E. POLLOCK replied: The number of appeals dealt with on Tuesday, March 16th, 1922, before the tribunal sitting at Nottingham was nine. Of these, three were allowed, one was adjourned, and the remainder were disallowed.

WEDNESDAY, MAY 24TH.

NATIONAL HEALTH INSURANCE BILL.

Sir A. MOND (Minister of Health), in moving the second reading of the National Health Insurance Bill, explained that it originated in one of the recommendations of the Geddes Committee to the effect that certain supplementary special grants, which had been paid in the past by the Exchequer, and which were in addition to the statutory grant under the National Insurance Act, should be discontinued, and that the money should be defrayed out of the insurance funds in future. The total amount of these special grants was approximately £2,150,000 per annum, made up in the following way: £1,700,000, the State contribution towards the cost of medical benefit in excess of the statutory proportion of two-ninths; £100,000, the expenditure incurred by the Ministry of Health on behalf of approved societies and insurance committees for the Regional Medical Officers and the Index Clearing Branch; and £350,000, the amount of the State grant to the Women's Equalisation Fund, which was set up in order to assist approved societies in meeting claims due to extra sickness among married women members. The Geddes Committee recommended that the money should be found by increasing the contributions in respect of insured persons by one penny per week, a halfpenny by the employer and a halfpenny by the insured person. In consequence of a feeling that it would be better to find some other method of raising the money than that of increasing the contributions, a meeting was held of the Consultative Council of approved societies, and the unanimous conclusion was arrived at that while the State should no longer be called upon to provide these special grants, an alternative scheme for raising the money to that proposed by the Geddes Committee should be adopted. The alternative scheme which was embodied in the present Bill had been endorsed by the societies generally. The proposed increase of contribution had for the moment been abandoned, and it was provided that the total cost of the special Exchequer grant, apart from the women's equalisation fund, should as from April 1st, 1922, be a charge on the benefit funds of the societies during the continuance of the present contract with the medical profession. The renewed contract which was made some time ago with the representatives of the medical profession would continue till Dec. 31st, 1923, when it would be subject to review in the light of the conditions then prevailing. In view of the accumulated surplus funds of the societies, which amounted to a total of £14,000,000, Sir Alfred Watson, the Government Actuary, advised that the extra charge imposed by the Bill upon the funds of the societies could be safely borne, subject to the time limit mentioned in the Bill—namely, December, 1923. The Bill would not in any way affect the operations of the schemes of additional benefits, which had been recently declared by the societies and branches. The financial stability of the scheme stood beyond all question. Even with these amounts withdrawn the surplus would stand well over £12,000,000 beyond the actuarial liabilities of the approved societies.

No Change in the Control of Medical Benefit.

He was given to understand that there was a certain amount of apprehension in the minds of the medical profession that the present Bill might make some change, or enable some change to be made, in the arrangements for the control of the medical benefit. There was no word in the Bill which modified the existing statutory provision for the control of medical benefit. Having regard to the provisions in this Bill for contributions in relief of State expenditure from the surplus funds of approved societies, it was no more than fair and reasonable to-day that he should give the societies an opportunity of expressing their views before any new terms of service were made with the panel practitioners on the expiry of the existing contracts of service. But the responsibility for accepting those contracts rested and would continue to rest with the Minister of Health. He did not think that anyone could cavil at the expenditure of the sum of £100,000 which was incurred by the Ministry of Health on behalf of the approved societies in respect of the regional medical officers and the index clearing branch. The additional medical officers really saved time and a very large amount of money by getting people off the books who would otherwise remain on them at considerable cost. The Exchequer grant of £350,000 to the Women's Equalisation Fund disappeared in January last, but there was a surplus of something like £2,000,000 to enable any deficiency to be met under that heading.

Major FARQUHARSON said that there was a considerable reduction recently made in medical treatment, which would certainly have some bearing on the figures now before the House.

Sir A. MOND said that had already been discounted. The medical fees were still much higher than in the time of the 1918 Act. He was pleased that he had been able to get the medical profession to reduce their fees somewhat, but it still left necessary the figures they were dealing with under this Bill. When they got to a more stabilised condition he hoped they would be able to get more to the normal state of things under which the Act was originally framed. Under Clause 3 of this Bill he was taking power up to Dec. 31st, 1922, to vary the provisions of the 1918 Act to enable them to make payments to approved societies which would enable them to pay cash benefits to those who would otherwise not be entitled to them owing to loss of employment. It was very important and urgent that this Bill should pass into law as early as possible.

Mr. THOMAS said that the Bill violated every pledge that had been given to the insured person. While he did not think it would be wise to divide against the Second Reading of the measure, it would have to be carefully considered in Committee, and they must secure a definite guarantee about the position in 1923. When the time came to review the agreement with the doctors those who paid the piper should at least have an opportunity of calling the tune.

The View of the Approved Societies.

Sir A. WARREN, speaking on behalf of the approved societies, said that it seemed to him an exceedingly reasonable thing to ask that the societies should be consulted in regard to any new agreement it was proposed to make with the medical profession. They should come into some reasonable connexion with the profession, a connexion which hitherto they had never had. The doctors had always kept them at arm's length. He wanted the Minister to reaffirm his decision in that matter, because already the medical profession were taking exception to it. He had an extract from the remarks made at an interview recently with the Minister's chief advisers by the Secretary of the British

Medical Association, in the course of which that officer said: "Ministers come and Ministers go, but we know from what we have seen of the approved societies that if you give them an inch they will take an ell, and we are not prepared to give them that inch." That was a remarkable statement to make, and if it was true the approved societies could have said something very much stronger and something very much more pungent regarding the medical profession. When had they given the societies an inch? Unless they got a deliberate promise he wished to say that the approved societies would put up the strongest fight of their lives to ensure that not one farthing more should be taken from their funds. These surpluses had not come from the medical profession, nor had they fallen from the ethereal blue, but were the result of careful administration and of the hard, honest, and thorough work of thousands of officials throughout the country. They were prepared in the exigencies of the situation to allow their surpluses to be raided, but they would see that in the future there should be no raiding, because they could, if they cared to do so, take measures and means whereby no surpluses should arise.

Mr. CAUTLEY said he was not satisfied that this money could not be raised by some prolongation of the redemption period or the reserve value formed when the original Insurance Act was passed. Unless he was assured that this was a matter that could be threshed out in Committee, he should feel bound to vote against the Bill.

Rejection of the Bill Moved.

Major MACKENZIE WOOD, in moving the rejection of the Bill, said that he understood that the Consultative Council gave the somewhat qualified agreement they did give to this measure on the expressed understanding and undertaking by the Minister that when the present agreement ran out at the end of next year the approved societies would be consulted in regard to any new agreement with the doctors. But the doctors, as far as he knew, repudiated that, and said that they would have nothing to do with negotiations with the approved societies. He thought it would be a mistake for the House to approve the Bill at this stage.

Mr. RHYS DAVIES, in seconding the motion for rejection, said the medical profession had taken up rather a strange attitude towards the approved societies in dealing with this Bill. The doctors, so far as his knowledge went, were the only people in this country who were paid wages and were not employed by anybody. They declined to be employed by anybody.

Major FARQUHARSON: Every panel practitioner has to enter into a very definite contract of service. Surely that is a contract of employment.

Mr. RHYS DAVIES said that when a person was employed he could be dismissed, but the doctors could not. They certainly ought to be well paid, but the panel system was a failure. It could be proved that prior to the present system the doctors for less money gave to the same patients better service.

The Medical Profession and the Working of the Act.

Major FARQUHARSON said that nothing had given him greater regret that afternoon than to notice the ease and the avidity with which certain Members chose to attack the medical profession. If approved societies simply desired to improve the medical service by getting rid of black sheep in the medical profession, they would find no more hearty co-workers than the great rank-and-file of the panel practitioners. The medical profession recently agreed voluntarily to a diminution in their remuneration amounting to about £1,250,000. Let hon. Members not forget that the doctors were a very important part of the mechanism of National Health Insurance. One of the causes of the splendid surplus which many societies now possessed was to a very considerable extent to be found in the most effective work done by the medical profession under the Act. He thanked the Minister on behalf of the medical profession for his attitude in reference to their fears of being put again under the heel—it was nothing more or less—of the clubs. He was once a club doctor himself, and he could assure the House that no harder work was ever done for a more miserable pittance than was done in those days. If the approved societies wished to return to those conditions, and to force the medical profession into that position, it would be a fight to a finish. The insured person would suffer. To the glory of the profession doctors would never refuse to attend the person who was ailing or sick, whether they got something or nothing; but were these men to be treated harshly? He had no mandate to speak for the profession, but he believed that they would hear with great gratitude the frank statement of the Minister of Health that they would not have to meet that point of view. He had not the slightest doubt that when the time came to recast the figure it would be done in a fair, straightforward manner. The medical profession would not object to approved societies having access to the Minister. The profession wished to dictate to no one, and he hoped that hon. Members would cease attacking them on the ground that their ranks contained a few black sheep of which the profession were anxious to get rid.

The Minister's Reply.

Sir A. MOND, replying to the debate, said many hon. Members had adversely criticised the panel system, but he had yet to learn of a better one. He had agreed with the approved societies that he would consult them in arranging new terms with the medical profession, but the power to decide those terms must be left with the Minister of Health.

The motion for the rejection of the Bill was defeated by 113 votes to 52, and the Bill was read a second time.

THURSDAY, MAY 25TH.

The Water-Supply and Public Health.

Sir WALTER DE FRECE asked the Minister of Health whether, in view of a possible recurrence of another extended dry period this spring and summer, his department was, in the interests of public health, taking any steps to watch the water-supply of the country; whether the depleted springs of last year had been refilled; whether he was aware that there was already water shortage in parts of the country; and whether public authorities had been in any way warned as to the need for care and prudence.—Sir A. MOND replied: Yes, Sir; I am fully aware of the situation as regards water-supply, and it is being carefully watched by my department. A circular on the subject was recently issued, and I will send the hon. Member a copy.

Merchant Shipping (Venereal Disease) Bill.

Major COLFOX presented the Merchant Shipping (Venereal Disease) (No. 2) Bill, a measure to amend the Merchant Shipping Acts, 1894 to 1921, with respect to seamen suffering from venereal disease. The Bill was read a first time.

MONDAY, MAY 29TH.

Duty on Laboratory Vacuum Flasks.

Mr. CHARLES WHITE asked the President of the Board of Trade why laboratory vacuum flasks were liable for duty under the Safeguarding of Industries Act, whilst ordinary vacuum flasks were exempt as not being scientific appliances or instruments, in view of the fact that many glass articles, in the nature of toys, were also dutiable.—Mr. STANLEY BALDWIN replied: Laboratory vacuum flasks are included in the list of articles dutiable under the Safeguarding of Industries Act, because they fall within the scope of the general heading "Scientific Glassware" in the schedule to the Act. Ordinary vacuum flask food containers cannot properly be regarded as included in this or in any other general heading of the schedule, which is the only question which the Board of Trade have to determine.

Regulations at Maghull Pensions Hospital.

Mr. ALLEN PARKINSON asked the Minister of Pensions if he was aware that there was serious dissatisfaction among the patients at the Ministry of Pensions hospital at Moss Side, Maghull, near Liverpool, owing to conditions being imposed upon them which did not apply at other hospitals at Knotty Ash, Mossley Hill, or Lower Buck-road, Liverpool; and whether he would have inquiries made into the regulations at present in operation, and if he found that they were more stringent or oppressive than at the other Ministry of Pensions' hospitals mentioned, would he have them modified and the patients given the same freedom and liberty as all the hospitals mentioned.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: The conditions as regards passes out of hospital, which I gather my hon. friend has in mind, are as favourable at Maghull as at the other hospitals named, except in so far as special precautions have to be taken to safeguard the patients treated there against risks arising out of the unfortunate disability, epilepsy, from which they suffer.

Amalgamation of Health and Unemployment Insurance.

Lieut.-Colonel Sir JOHN HOPE asked the Minister of Health when the Departmental Committee now considering the practicability of amalgamating unemployment and health insurance cards and administration would present its report.—Sir A. MOND replied: I am informed that the Committee are making satisfactory progress with their consideration of the matters referred to them, but that they are not yet able to say when their report may be expected.

Diphtheria at Olney.

Captain BOWYER asked the Minister of Health whether, in view of the fact that ever since April 24th his department had been asked to inquire into the cases of diphtheria at Olney, Bucks, and that during the last two weeks there had been two more deaths, he would say how much longer it would be before this urgent matter was dealt with.—Sir A. MOND replied: I have been in communication with the county council and the rural district council in regard to

this outbreak of diphtheria, and regret that there has been some delay consequent upon the necessity of obtaining reports from the medical officers of health of both authorities. These reports have now been received, but as further cases of the disease have recently been notified, one of the medical officers of the Ministry has now visited Olney and conferred with the local authorities as to the measures which should be adopted.

TUESDAY, MAY 30TH.

Milk and Meals for Mothers.

Mr. KENNEDY asked the Secretary for Scotland whether he was aware that the Scottish Board of Health had issued a circular intimating that it was proposed to reduce the grant for milk and meals for nursing and expectant mothers and infants forthwith, involving a reduction from £100,000 to £9000; whether he was aware that in consequence the Glasgow City Council had had to curtail its services, and that 13,000 children had been deprived of a pint of milk daily and 7000 of a dinner; and whether, in view of the present distress due to unemployment, the circular would be withdrawn.—Mr. PRATT (Parliamentary Secretary to the Scottish Board of Health) replied: A circular has been issued intimating that the grant in aid of expenditure on food and milk provided under maternity service and child welfare schemes has been limited for the current year to £6000. I am sending a copy of the circular to the hon. Member. I understand that the town council of Glasgow has decided, in view of the limitation of the grant in aid, to restrict their scheme to the supply of milk to bottle-fed babies and meals to mothers, and that milk-supplies from the council to children have ceased in approximately 11,000 cases and meals in 6000 cases. Having regard to the real objects of maternity and child welfare schemes, and to the fact that parish councils have received special statutory powers to deal with distress arising from unemployment, I cannot entertain the suggestion in the last part of the question.

Status of Colonial Dentists.

Mr. PERKINS asked the Minister of Health whether any tribunal existed which settled the status of dentists in practice in the Dominions who desired to practise in this country.—Sir A. MOND replied: Under Section 8 of the Dentists Act, 1878, a person who shows that he holds a recognised certificate granted in a British possession, and that he is of good character, is entitled on the payment of the registration fee to be registered as a Colonial dentist in the Dentists Register without examination in the United Kingdom. A "recognised certificate" is defined by Section 10 as one which is recognised for the time being by the General Medical Council as furnishing sufficient guarantees of the possession of the requisite knowledge and skill for the efficient practice of dentistry or dental surgery. A Colonial dentist who does not hold such a certificate will not be admitted to the Register, and, therefore, will not be allowed to practise in the United Kingdom after Section 1 of the Dentists Act, 1921, comes into operation.

UNIVERSITY OF PARIS.—A revision course will be held at the medical clinic of the Hôpital de l'Hôtel Dieu under the direction of Dr. Maurice Villaret, from July 1st to 13th. Special attention will be given to recent developments in clinical practice and to the application of modern laboratory methods to diagnosis. There will be 33 sessions of lectures and practical classes, including demonstrations on cases, and laboratory work. A certificate will be given to those who have attended the course, for which a fee of 150 francs is payable.

THE LATE LIEUT.-COL. C. W. OWEN, I.M.S.—The death occurred at Hankham, Westham, near Eastbourne, on May 23rd, of Lieut.-Col. Charles William Owen, who had long resided in Sussex and took a considerable interest in local affairs. Born in 1853, he studied medicine at St. Thomas's Hospital, Moorfields, Paris, and Brussels. He took the L.R.C.P. diploma in 1874 and became M.R.C.S. in the same year. Joining the Bengal army he served in the Afghan War, 1879–80, and was slightly wounded. He was mentioned in dispatches and secured the C.I.E. medal with two clasps. In 1882 he took part in the Egyptian campaign, including the Battle of Tel-el-Kebir, and was awarded medal and clasp and the Khedive's star. He was a member of the Afghan Boundary Commission, and was created a C.M.G. in 1887. In 1893 he took part in the Mohmund Expedition. He received rapid promotion while in the army, and was surgeon to Lord Roberts while he was Commander-in-Chief in India. He was also medical adviser to the late Maharajah of Patiala. During the war he actively associated himself with the work of the British Red Cross Society, being Commandant of Sussex 15th V.A.D.; he was also a justice of the peace for the county.

Medical News.

UNIVERSITY OF OXFORD: BOYLE LECTURE.—The Boyle Lecture of the Oxford University Junior Scientific Club will be delivered on Wednesday evening, June 7th, at 9 P.M., in the Hall of Balliol College, by Prof. W. M. Bayliss, F.R.S. The subject of the lecture is Life and the Laws of Energy.

UNIVERSITY OF CAMBRIDGE: DIPLOMA IN PSYCHOLOGICAL MEDICINE.—A short course of instruction for the D.P.M. examination will be held in Cambridge from July 12th to August 17th. The following lectures, &c., will be given: (*a*) Anatomy and Physiology of the Central Nervous System with Practical Work (Dr. Roberts). (*b*) Psychology, with Practical Work (Mr. Bartlett and Dr. Miller), Mental Tests (Miss Fildes).; (*c*) Psychopathology and Psychotherapy (Dr. MacCurdy, Dr. Noble); (*d*) Psychology and Pathology of Dreams (Dr. Rivers); (*e*) Mental Diseases, with clinical work (Dr. Archdale); (*f*) Mental Deficiency (Dr. Tredgold). The names of those who wish to take the course should be sent to the Secretary, D.P.M. Committee, Psychological Laboratory, Cambridge, before July 5th.

UNIVERSITY OF LONDON.—A meeting of the Senate was held on May 24th, the Vice-Chancellor, Sir Sydney Russell-Wells, M.D., being in the chair. In place of the late Prof. A. D. Waller, who had been originally selected for the purpose, Sir John Rose Bradford, F.R.S., has been appointed to represent the University at the unveiling of a memorial to Pasteur, in commemoration of the hundredth anniversary of his birth, to take place at Strasbourg in May, 1923. Sir John Rose Bradford has also been elected vice-chairman of the University College Committee. The Chadwick trustees have renewed for 1922-23 their grant of £250 for the furtherance of sanitary science at University College.

At the Royal Society of Medicine, 1, Wimpole-street, W. 1, the following lectures will be given by professors of Dutch universities. On Monday, June 12th, Injurious Agents and Growths, by Dr. Mark Jansen (Leiden), at 5 P.M. On Wednesday, June 21st, the Pathology of Hæmoglobin, by Prof. Dr. A. A. Hijmans van den Bergh (Utrecht). These lectures will be delivered in English. Admission is free without ticket.

At examinations held recently at the University of London the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Janet K. Aitken, London Sch. of Med. for Women; Helen R. Ashton, London Hosp.; Edward T. Bailey, Middlesex Hosp.; Kenneth N. G. Bailey, St. Bart.'s Hosp.; Eric Biddle, Guy's Hosp.; Hilda C. Bowser, Edith K. Budden, and Jean Elizabeth Callander, London Sch. of Med. for Women; Phillip C. L. Carrier, Charing Cross Hosp.; Anaple Frances M. Christie, London Sch. of Med. for Women; Alison M. Collie, St. Mary's Hosp.; Gwendolen C. Cotton, London Sch. of Med. for Women; Edward C. Dodds (honours, distinguished in pathology and midwifery), Middlesex Hosp.; Arthur H. Douthwaite, Guy's Hosp.; Elizabeth C. Eaves, Sheffield University and King's Coll. Hosp.; Keridwen V. Edwards, Univ. Coll. Hosp.; Frankis T. Evans, St. Bart.'s Hosp.; Hilda M. Garlick, London Sch. of Med. for Women; Calvert M. Gwillim (honours, distinguished in midwifery), St. Bart.'s Hosp.; John F. Hackwood, St. Thomas's Hosp.; Doris M. Hammond, London Sch. of Med. for Women and St. Mary's Hosp.; Oscar S. Hillman, Middlesex Hosp.; Margaret O. Howell, Univ. Coll. Hosp.; Fred C. Hunt, London Hosp.; Lily G. Iliff (honours, distinguished in forensic medicine), London Sch. of Med. for Women; Erna Henrietta Jebens, London Sch. of Med. for Women and St. Mary's Hosp.; Winifred Mary Jenkins, London Sch. of Med. for Women; John N. Kerr, St. Bart.'s Hosp.; Henri Toussaint Levieux, Guy's Hosp.; Charles G. Lewis, Univ. Coll. Hosp.; Reginald C. Lightwood, King's Coll. Hosp.; MDouglas McClean, St. Thomas's Hosp.; Hugh J. McCurrich, Bristol University and St. Bart.'s Hosp.; Ernest K. Macdonald, St. Thomas's Hosp.; Montague Maizels (honours, distinguished in medicine), Guy's Hosp.; Sydney A. S. Malkin, Univ. Coll. Hosp.; Grant Massie (honours, distinguished in surgery), Guy's Hosp.; Merell Philippa Middlemore (honours, distinguished in medicine and surgery), and Eva Joyce Newton, London Sch. of Med. for Women; Donald C. Norris (honours, distinguished in forensic medicine and surgery) and Alan Cecil Perry (honours, distinguished in medicine and surgery, University Medal), London Hosp.; Winifred C. Piggott, London Sch. of Med. for Women; Olive G. Potter, London Hosp.; Philippa P. Pughe (honours, distinguished in surgery), Univ. Coll. Hosp.; Eleanor M. Reece, London Sch. of Med. for Women; Montague H. Renall, St. Bart.'s Hosp.; Edward H. Richards (honours, distinguished in forensic medicine), Guy's Hosp.; Elaine M. K. Salmond, London Sch. of Med. for Women; Harry Shannon, St. Bart.'s Hosp.; Luther J. Soutter, Westminster Hosp.; Hari Vishwanath Tilak,

Grant Med. Coll., Bombay, and Guy's Hosp.; Henry Tothill, St. Bart.'s Hosp.; Estlin H. Weatherall (honours, distinguished in medicine, forensic medicine, and midwifery), St. Bart.'s Hosp.; Mildred Warde, London Sch. of Med. for Women; Arthur D. Wright (honours, distinguished in medicine), St. Mary's Hosp.; Eva Young, London Sch. of Med. for Women.

The following candidates have passed in one of the two groups of subjects:—

Group I.—Sarah E. Andrews, Westminster Hosp.; Norman D. Ball, Joyce R. Batten, and John A. Binning, Univ. Coll. Hosp.; Solomon Bloom, St. Bart.'s Hosp.; Vivian Feldman, Univ. Coll. Hosp.; Jacob Franks, London Hosp.; Arthur J. Gardham, Univ. Coll. Hosp.; Laura P. Gibbon, London Hosp.; Marjori P. C. Greene, London Sch. of Med. for Women; Noel E. ffarnwell Kemm, Bristol University; Rupert A. Madgwick, London Hosp.; Enid M. Moore, St. Mary's Hosp.; John B. G. Muir, Middlesex Hosp.; Bertram S. Nissé, London Hosp.; Frederick A. Pickworth and Tressila Laura Pires, Charing Cross Hosp.; William G. Rose, St. Mary's Hosp.; Frank P. Schofield, St. Bart.'s Hosp.; Eleanor C. E. Stone, St. Mary's Hosp.; and Aubery J. C. Tingey, St. Thomas's Hosp.

Group II.—Mary H. Y. Blakeston, London Sch. of Med. for Women; James C. Churcher, St. Thomas's Hosp.; Marjory A. Godfrey, London Sch. of Med. for Women; Sydney D. Rhind, St. George's Hosp., and Howard M. Troop, London Hosp.

ERRATUM.—In a recent notice of "Zomogen" (Zomogen Food Products, Ltd.), we termed this substance a "Restoration" Food instead of a "Restorative" Food.

Dr. Philip E. Hill, medical officer of health for Crickhowell Rural District Council, has been appointed a Deputy Lieutenant for the County of Brecknock in recognition of military services.

BATTERSEA GENERAL HOSPITAL.—Lord Tenterden presided at the annual Court of Governors of the Battersea General Hospital, on May 25th, when an address was delivered by Dr. Robert Bell, in charge of the Cancer Research Department, who expressed himself as "quite convinced that 90 per cent. of people were anti-vivisectionists," and who gave particulars of many cases of cancer which, he alleged, had been pronounced incurable elsewhere, and had yielded to the treatment prescribed at the antivivisection institution. The annual report was unanimously adopted.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION: CHILDREN'S HOSPITAL WEEK.—A Post-Graduate Course on Diseases of Children, will be held from Monday, July 3rd, to Saturday, July 8th. Clinical demonstrations in the various departments will be given at the following hospitals which have kindly consented to take part: East London Hospital for Children, Paddington Green Hospital for Children, Victoria Hospital for Children, Queen's Hospital for Children, St. Marylebone General Dispensary. The syllabus will be ready in a few days and copies will be forwarded on application to the Secretary, to the Fellowship of Medicine, 1, Wimpole-street. If a sufficient number of entries are received it is proposed to repeat the short course in General Medicine, just recently held, during July and August, the dates of which will be announced shortly. The Bulletin for June, giving general information on post-graduate work in London, is available, and copies can be obtained on application to the Fellowship of Medicine.

The next post-graduate lecture at the Royal Society of Medicine will be delivered by Sir William Hale-White, K.B.E., on the Clinical Symptoms of Coli Infection of the Urine, on Tuesday, June 13th, at 5 o'clock.

CHILDREN'S ORTHOPÆDIC CENTRES.—We published last year[1] an important report, drawn up by the Central Committee for the Care of Cripples, which outlined the principles governing the establishment of orthopædic centres for children. This committee has now issued a report which shows the work accomplished up to December, 1921, when, excluding London, there were 1665 beds for children in institutions giving both treatment and education, and 21 P.D. schools accommodating 1610 children, against an estimate of 125,000 children requiring treatment. There were 2982 children in beds in the Poor-law infirmaries of the country, but only 23 of those institutions give any form of education. The existing schemes working on the lines suggested by the central committee include the Headington unit, Wingfield Hospital near Oxford, which serves a district consisting of the counties of Berks, Bucks, and Oxon, and which is under the orthopædic supervision of Mr. G. R. Girdlestone. To the hospital are attached a number of preventive and after-care centres, where at the weekly clinics 568 cases are under treatment. These, with 52 in-patients, make a total of 620 cases and the result of treatment has been highly satisfactory. The Ethel Hedley Hospital for Crippled Children at Calgarth Park, Windermere, with Mr. Harry Platt as consulting and operating surgeon, forms the nucleus of an after-care scheme embracing Westmorland, Cumberland, and a part of North Lancashire. In Surrey there is a curative post at Kingston which receives children sent by certain London hospitals, while an experimental orthopædic centre has been started at Woking at the suggestion of the medical officer of health. In Hertfordshire there are clinics at Hertford, Watford, St. Albans, and Hitchin, which are under the supervision of Mr. R. C. Elmslie. These clinics are in an early stage of development, but already 69 cases have visited them. The work which these centres are doing is greatly hindered by lack of funds in spite of the help which is rendered by private effort, and by local branches of the British Red Cross Society. The address of the Central Committee for the Care of Cripples is Carnegie House, 117, Piccadilly, London, W. 1.

[1] THE LANCET, 1921, ii., 669.

BATH: ELECTRO-THERAPY AND MASSAGE DEPARTMENT.—A new department for treatment by high frequency, diathermy, Bergonié treatment, ionisation, the Bristow coil, four-cell baths, the leucodescent lamp, thermo-heat pads, and other methods has recently been installed at Bath. Many of these can be combined with the light and heat treatments, mud packs, and the mineral baths and douches given in other departments of the Royal Baths. A feature is also being made of massage, either alone or after baths and other treatments, and a room has also been set apart for mechano-therapy on the Zander system. Patients will only be received under medical advice, and the treatments will be administered only by qualified persons. On May 31st a series of demonstrations of various treatments were given to the medical profession.

DUBLIN MILK.—Dr. J. W. Bigger, Medical Inspector of the Local Government Board, Ireland, read a paper recently before the Statistical and Social Inquiry Society of Ireland dealing with the results of a bacteriological study of the Dublin milk-supply. "If Dublin milk," said Dr. Bigger, "were offered for sale in Boston, 48 per cent. of it would have been condemned and its suppliers prosecuted"; adding that in Ireland, so long as fat was not abstracted, no offence was committed, although, in his opinion, it was a far more criminal act to sell a solution of manure in milk than a mixture of milk and water. He suggested the following requirements for a supply of certified milk for Ireland:—All cows, the milk of which was to be certified, should be examined periodically by a veterinary surgeon and be negative to the tuberculin test and be otherwise healthy; all workers should be examined at intervals and pronounced free from transmissible disease; the dairy should be suitable for the purpose, and be kept clean; the equipment should be of approved design, and facilities for proper cleaning be available; the milk should be cooled immediately after milking, and be sold within 24 hours certified; no milk should contain more than 200,000 bacteria per cubic centimetre, and lactose-fermenting bacilli should not be present in 1/25th of a cubic centimetre. The fulfilment of these requirements would, he contended, guarantee that certified milk was a safe food for infants and young children. His principal reason, he declared, for bringing the subject before the Statistical Society was that last year in the City of Dublin 382 babies died from enteritis, and dirty milk was the cause of death in the majority of these cases.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Wednesday, June 7th.

SURGERY: at 5.30 P.M.
Discussion:
On "Diathermy in Surgical Practice," to be opened by Mr. Clayton-Greene, followed by Mr. Douglas Harmer, Dr. E. P. Cumberbatch, and others.

ELECTRO-THERAPEUTICS:
Members of this Section are cordially invited to attend and to take part in the above discussion.

Thursday, June 8th.

NEUROLOGY: at 8.30 P.M.
Paper: Dr. Shellshear: The Morphological and Functional Significance of the Blood Supply of the Brain (with specimens depicting the blood-supply of the cerebellum and the claustrum.)

Friday, June 9th.

OPHTHALMOLOGY:
Clinical Evening at 8 P.M. Exhibition of cases to be followed by the *Annual General Meeting.*
Election of Officers and Council.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.
THURSDAY, June 8th.—5 P.M., Croonian Lectures (1) Dr. Gordon Holmes: The Symptoms of Cerebellar Disease and their Interpretation.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: May–June, 1922.
CLINICAL LECTURES AND DEMONSTRATIONS.
TUESDAY, June 6th.—2 P.M., Dr. Grainger Stewart: Out-patient Clinic. 3.30 P.M., Mr. Armour: Surgical Treatment of Torticollis.
WEDNESDAY, June 7th.—2.15 P.M., Dr. James Collier: Clinical Demonstration.
THURSDAY, June 8th.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Grainger Stewart: Tumours of Spinal Cord.
FRIDAY, June 9th.—2 P.M., Dr. Gordon Holmes: Out-patient Clinic. 3.30 P.M., Demonstration of Fraenkel's Exercises: Exercise Room.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
NEURO-PATHOLOGY.—Dr. J. Godwin Greenfield.
THURSDAY, June 8th.—12 noon, Syphilis of the Nervous System (I.).
ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.—Dr. Gordon Holmes.
TUESDAY, June 6th.—12 noon, Physiology of Pons and Cerebellum.
FRIDAY, June 9th.—12 noon, Mid-Brain and Visual System.
WEDNESDAY, June 7th.—Demonstrations by Dr. Adie on Methods of Examining Cases of Nervous Diseases, and Interpretation of Physical Signs.
An inclusive fee of £10 10*s.* will be charged for the whole course. Any part of the course may be taken separately at a special fee. A special arrangement can be made for those unable to attend the whole course. For details with regard to these special arrangements, applications must be made to the Dean. Fees should be paid to the Secretary of the Hospital at the office on entering for the course.
C. M. HINDS HOWELL, Dean of Medical School.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E. Lectures on Advanced Surgery in the Clinical Theatre.
FRIDAY, June 9th.—4.15 P.M., Mr. Hugh Lett: Hæmaturia.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.
THURSDAY, June 8th.—5 P.M., Prof. W. Bulloch: The Historical Development of the Doctrines of Croup and Diphtheria.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
TUESDAY, June 6th.—10 A.M., Dr. Paterson: Demonstration of Medical Cases. 12 noon, Mr. Sinclair: Surgical Diseases of Abdomen. 5 P.M., Mr. Tyrrell Gray: Static Deformities.
WEDNESDAY, 10 A.M., Mr. Banks-Davis: Operations, Throat, Nose, Ear. 11 A.M., Dr. Simson: Gynæcological Demonstration. 5 P.M., Mr. Donald Armour: Cerebral Surgery.
THURSDAY, 10 A.M., Dr. Grainger Stewart: Neurological Cases. 12 noon, Dr. Scott Pinchin: Diseases of the Heart. 5 P.M., Sir Sydney Russell-Wells: The Circulatory Differences in Mitral Stenosis and Aortic Regurgitation.
FRIDAY, 10 A.M., Dr. Robinson: Gynæcological Operations and Ward Visit. 12.15 P.M., Dr. Burnford: Applied Pathology. 5 P.M., Dr. Pritchard: Clinical Lecture.
SATURDAY, 10 A.M., Dr. Burnford: Ward Demonstration. 11 A.M., Dr. Saunders: Medical Diseases of Children.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M. 2 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham.
WEDNESDAY, June 7th.—4 P.M., Dr. Thomas Grainger Stewart: Physical Signs of Diseases of the Nervous System, their Uses and Limitations.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, June 8th.—4 P.M., Mr. Waugh: The Colon from a Surgical Aspect.

Appointments.

BROWN, W. M.B., Ch.B. Edin., has been appointed Honorary Junior Physician at Royal Aberdeen Hospital for Sick Children.
YEOMAN W., M.B., B.S. Lond., Honorary Physician to the Royal Bath Hospital and Rawson Convalescent Home, Harrogate.
Certifying Surgeons under the Factory and Workshop Acts: RUDKIN, G. W. R., L.R.C.P. Lond., M.R.C.S. (Crondall) CAMERON, J. (Muirkirk).

Vacancies.

For further information refer to the advertisement columns.
Barnsley, Beckett Hospital.—Jun. H.S. £200.
Benenden, Kent, National Sanatorium.—Asst. M.O. £250.
Bradford Children's Hospital.—H.S. £180.
Bradford Municipal General Hospital, St. Luke's.—H.P.'s and H.S.'s Each £200.
Cancer Hospital, Fulham-road, S.W.—Anæsthetist.
Canterbury, Kent and Canterbury Hospital.—Res. M.O. £175.
Delhi, Lady Hardinge Hospital and College.—Pathologist.
Derby Borough Mental Hospital.—Asst. M.O. £400.
Doncaster Royal Infirmary and Dispensary.—Sen. H.S. £220.
Durham County Sanatorium, Wolsingham.—Asst. M.O. £400.
Exminster, Devon Mental Hospital.—Third Asst. M.O. £300.
Great Yarmouth Hospital.—H.S. £200.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—Cas. M.O., Cas. S.O., H.P., and H.S. Each £150.
Hospital for Women, Soho-square.—Clin. Assts.
Italian Hospital, Queen-square, W.C.—Hon. Ophth. Surg.
King Edward VII. Sanatorium, Midhurst, Sussex.—Pathologist. £400.
London Lock Hospital, 91, Dean-street.—Clin. Assts.
Macclesfield General Infirmary.—Sen. H.S. £200.
Manchester, Northern Hospital for Women and Children.—H.S. £200.
Manchester, St. Mary's Hospitals for Women, &c.—H.S. £100.
National Dental Hospital, Gt. Portland-street, W.—Hon. Anæsthetist.
Nottingham General Hospital.—H.S. £200.
Oxford, Radcliffe Infirmary and County Hospital.—Cas. H.S. and Res. Accoucheur. Each £200.
Perth Prison and Criminal Lunatic Dept.—M.O. £350.
Prince of Wales's General Hospital, Tottenham, N.—Asst. H.S. £120.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O. £300.
Richmond Royal Hospital.—Refractionist. £50.
Rochdale Infirmary and Dispensary.—Jun. H.S. £180.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P. Also H.S.'s., &c., each £50.
Royal National Orthopædic Hospital, 234, Gt. Portland-street, W.—H.S. £150.
St. Helens County Borough.—Asst. M.O.H. £450.
Sheffield Royal Infirmary.—Two H.P.'s, H.S., Ophth. H.S., and Asst. Cas. O. Each £150.
South Shields, Ingham Infirmary.—Sen. and Jun. H.S.'s. £200 and £150 respectively.
University College Hospital, Child Welfare Dept.—Second Clin. Asst.
University College Hospital, Gower-street, W.C.—Ophth. Clin. Asst. £50.
University of London.—Sir William Dunn Chair of Pathology. £1300.
West London Hospital, Hammersmith-road, W.—Two H.P.'s and H.S. Each £100.
Westminster Hospital, Broad Sanctuary, S.W.—Asst. H.P. and Asst. H.S. £52.
Wigan, Royal Albert Edward Infirmary.—Jun. H.S. £175.
The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Burton-in-Kendal (Westmorland), and Stow-on-the-Wold (Gloucester).

Births, Marriages, and Deaths.

BIRTHS.

BROWN.—On May 24th, at Coates-crescent, Edinburgh, the wife of G. M. Brown, M.B., of a daughter.
BUCHANAN.—On May 21st, at a nursing home, Glasgow, the wife of J. Scouler Buchanan, M.B., of a son.
MILLS.—On May 26th, the wife of Dr. Robert James Mills, of Norwich and Langenschwalbach, of a daughter.
SMITH.—On May 28th, at 74, Kensington Park-road, W., to Dr. and Mrs. Eric Bellingham Smith—a son.

DEATHS.

TOMLINSON.—On May 28th, at Fern Hollow, Stoke Bishop, Lieut.-Colonel William Winslow Tomlinson, late R.A.M.C., in his 82nd year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE OUTLOOK FOR THE VOLUNTARY HOSPITAL SYSTEM.

Abstract of Two Addresses delivered on May 25th at the Twelfth Conference of the British Hospitals Association in Liverpool.

I.—THE CHANGE IN HOSPITAL FINANCE.

By Sir ALAN GARRETT ANDERSON, K.B.E.

EVEN before the financial revolution of the war the established system of hospital finance was beginning to grow old and tired. Since hospitals first began to beg from the rich in order to give free treatment for the poor, the industrial and social structure of the country has completely changed, and it would be a miracle if the system devised for one age proved to be the best for a new and different age. So long as the community was sharply divided into rich and poor, so long as those who got to the hospitals could be described as "the sick poor," so long the simple rule of finance by begging was perhaps sufficient, but immediately the community realised that working men and women wanted to be independent, ought to be independent, and must be paid by industry to pay their way as free citizens, then immediately change or reform in hospital finance began to be overdue, and with every year that passed and every victory of the workers in their long struggle for better conditions, the anomaly of treating them gratuitously in hospital, all lumped together as the sick poor, became more acute and the strain on the hospital budget more intolerable.

The Dangers of Free Treatment.

At the very first meeting in 1910 of the British Hospitals Association, Mr. C. S. Lock pointed out the dangers of the free treatment of patients in hospital, and when Sir William Osler addressed you in 1913, he spoke of this system of finance by begging, calling it "the voluntary system." I do not agree that charity finance is the essence of the voluntary system, but what Sir William Osler said was, "My advice is very brief and direct—give it up. It is very antiquated, out of date, and is not going to continue. Make up your minds that you must accept the principle of taking pay from patients, it answers admirably elsewhere." There are several reasons which endear the old charity finance to the hospitals. The hospitals of Great Britain were slow to move because they were not in close enough contact with one another to adopt a common policy, and it is essential that the hospitals as a whole should be able to think and act for their common interest with reasonable speed. Let us glance for a moment at some of the results of the failure of hospitals to move with the times in these last 20 years. Every hospital has been encouraged to expose its sores in order to get charity, and naturally, as charity was apt to go to the biggest debts, there was little inducement to avoid them. Among cases of equal urgency the hospitals themselves made poverty the passport for treatment, and as the public gave them little encouragement for thrift, they gave little encouragement to their patients to provide for a rainy day when they would need the help of hospitals. Again, the finance by charity has been a heavy strain upon the treasurers of the hospitals, and upon the comparatively small section of the community from which they have begged, and as a result the work of the hospitals has been cramped by poverty and the patients have, in many cases, to suffer delay or discomfort, which they would have gladly paid to avoid. These defects are only the result of a system which rewards poverty rather than efficiency.

The Dangers of Change.

Charity finance gives hospitals the freedom from control and interference and criticism, which is very attractive. On the other hand, finance by patients or prospective patients presupposes a large and active body of opinion, quite disposed to criticise, and to take a hand in hospital management, which is good, but also, alas, slow to draw the line between mundane affairs on which the layman may properly speak, and questions of scientific and medical interest, on which medical men must claim to be supreme. Again, if we admit the principle that everyone ought to pay for himself in hospital according to his means, can hospitals continue to relieve the indigent? Can we preserve the glory of the old system and still keep in step with society around us?

As my work lies in London, it is London I must quote, and I do so diffidently because it is not London that has given the lead in this change. I will give you one instance. The Midland Railway, on whose board I sit, has received from its men—from a committee representing about 60,000 men, of whom about 6000 are in London—a request to join with them in a regular contribution to hospitals, sufficient to pay the full maintenance cost in hospital of the men, their wives, and families; the men asked the company to bear one-third of the cost as a working expense, and to deduct two-thirds from their wages; and the board has approved in principle the proposal of the men. During the discussions we learned that in certain railway and other shops in Derby, over 90 per cent. of the men had already started a regular contribution to the local hospital of 1*d.* per week, and that as this was found insufficient they had raised their subscription to 2*d.* per week. In Sheffield we were told that many of the large firms joined with their men in the contribution at the rate of 1*d.* in the £ of annual wages, and in other districts the same idea is being put in force in various shapes. Now there is nothing peculiar in the case of the Midland Railway; the men of other railways have the same need of hospitals, the same spirit of independence, the same tenderness for wife and child—the directors of all our large businesses have the same desire to help their men to help themselves, and the same belief that private enterprise in hospitals—as in transport—will make rings round a Government department every time.

The Hospital Saving Association.

In London the great majority of the hospitals have decided to tell their patients that an independent working man ought to provide for himself and his dependents in sickness as he does in health, and to organise a system under which that provision can be made. They are setting up a company with limited liability, but with no power to make profits, called the Hospital Saving Association, which will invite persons within the hospital income limits to subscribe week by week or year by year the premium appropriate to cover their risk; on this Association the hospitals, the central funds, and the contributors will be represented. The H.S.A. will either pay to hospitals which treat contributors to the H.S.A. the charge, if any, which they expect from their patients, or by arrangement it may prove possible to distribute the income of the H.S.A. among the coöperating hospitals, on some principle other than the precise number of contributors treated in the year.

To avoid complications I will assume that at first all payments to hospitals will be made in respect of contributors to the H.S.A. actually treated, and will be at least as much as the hospital charges to other patients. We calculate that a premium of 3*d.* per week, or 12*s.* per annum, paid in advance by a working man to cover the risk for himself, his wife or dependent children, would work out as follows:—

100 contributors at 12*s.* pay to H.S.A. per annum	£60
Of these *two* become in-patients for three weeks, each at £4 cost to hospital per week	£24
Leaving a balance of	£36

to cover out-patient attendance on the 100, and the whole cost of their wives and dependent children.

It is neither necessary nor possible to attempt any exact estimate—not necessary, because this contribution of 12*s.* per annum is certainly far more than we get at present; not possible because, when the hospital finance is revised and when the income depends upon the work done by hospital rather than upon its debt, it may be found good both for hospitals and community to extend the hospital services, and the effect may well be to vary the incidence of in-patient sickness, upon which any estimates of cost must, of course, be based.

Criticism of the Association.

The chief criticism raised in London against trying any system of contributory finance was that it implied or involved a contract of treatment, and that hospitals, and particularly teaching hospitals, must keep themselves quite free to reject or receive patients on medical grounds alone. The H.S.A. is not open to this criticism, as each hospital will continue to select its patients exactly as it has always done, and need not know that the patient is a contributor to the H.S.A. till the time comes for payment. The hospitals will probably find it desirable to hold their almoners' inquiries into means at the time when the individual becomes a contributor to the H.S.A., and after this is done it will not be necessary to hold another inquiry when the patient reaches the hospital. I understand that the contributors will set store by this change, as they dislike inquiry about their means when they reach the hospital, but, of course, everyone is agreed that the almoners' inquiries as to means are absolutely necessary in every case in which the patient asks for any remission of charges, either from the hospital or from the doctor. As

a part of this system the hospitals will no doubt combine together in the appointment of almoners, so that in each workshop where the employees become contributors to the H.S.A., one almoner can conduct all the inquiries as to means on behalf of all the hospitals.

The Hospital Saving Association will ask employers to join their employees, and to contribute one-third of the total contributions. In such cases where masters and men join, the collections will be made by the masters in the pay-roll. In passing I should say that this system will promote the financial claims of hospitals from their present humble position as the last item on the industrial budget to the position they ought to occupy as one of the working costs of an organised business community. The employer knows he has to pay his men enough to buy food and clothes for their wives, children, and themselves, so apart from the occasional dispute about wages the working man's income adjusts itself automatically to meet changes of cost of living. The cost of maintenance during sickness should have the same claim as maintenance in health, and ought to be given the same priority over profits and over the claim of the income-tax collector. It would, of course, be easy to include in this scheme persons outside ordinary hospital income limits, if the hospitals were prepared to treat wealthier patients, but the present intention is to ask for a contribution calculated to cover the cost of maintenance of an ordinary hospital patient, and not the extra charge which hospitals might properly expect for themselves or their staff from a rich patient.

Safeguards in a Contributory Scheme.

These schemes of contributory finance by prospective patients have enormously increased the income of hospitals, but they have disclosed problems which will affect all hospitals as they travel along the same road. The contributor wants representation; in fact, unless he gets it, unless he feels that the hospitals are "his hospitals," he will not contribute; but the problem is not happily solved if the hospital becomes the tied house of a section of the community. The contributors must be able to make themselves heard, but they are not the only pebble on the beach.

Next, the help the hospital gets from its patients not must scare away charity, or we shall have done more harm than good. If once the charitable public gets the idea that the voluntary system cannot be saved by its subscriptions, the State will be forced to take over hospitals as it has taken over schools; voluntary hospitals will no more be able to command general public support than voluntary schools do to-day. It is well to remember also that if the State is forced to take over the weaker hospitals, the impression that the voluntary system is doomed will decrease subscriptions and endanger even the wealthiest hospital. The hospitals must sink or swim together, and in London all but one of the large hospitals and almost all the small hospitals are united for the first time in a combined appeal for money to clear their feet for a time until they can start the contributory system, and can increase in other ways the support they get from those who use the hospitals.

Organisation.

The King's Fund are convinced that the individuality and freedom of the hospitals must be maintained. Voluntary hospitals—in the sense of hospitals organised and controlled by private enterprise—seem to us far more likely to give the nation the medical education, the research, the hospital services, that it needs than any State-controlled service. We do not want another great public department in charge of the hospitals, and, whether we speak as taxpayers or as occasional patients of our family doctor, we do not want the State to organise and engage doctors on an annual salary.

Our objections to bureaucratic control are not decreased if we think we might ourselves become the Government department in charge of the hospitals, and the King's Fund, as the Voluntary Hospitals Committee for London, is at present an agent of the Government. In all our dealings with the hospitals we have therefore tried, even at the risk of delay, to secure decision and action by the hospitals rather than to force them along a line selected by us. If the voluntary hospitals are to endure, the initiative must be theirs, and they must show their power to think and act together. In these difficult negotiations we should have failed over and over again, if it had not been that the hospitals of London through the Regional Committee of the British Hospitals Association applied themselves to this new task with the spirit which has made them what they are to-day, and asked us, the King's Fund, with a practically unanimous voice, to lead them in a policy they themselves had laid down.

It rests with the hospitals themselves, and as they must act together, it rests most of all with the Regional Committees of the British Hospitals Association to save the voluntary principle of hospital administration.

II.—THE VOLUNTARY HOSPITAL: A RETROSPECT AND A PROSPECT.

By W. THELWALL THOMAS, Ch.M., F.R.C.S.,
SENIOR SURGEON, ROYAL INFIRMARY, LIVERPOOL.

[THE larger part of Prof. Thomas's address was occupied with a retrospect of the institutions for the treatment of the sick poor, which go back as long as records can be traced. The foundation of religious orders devoted to the care of the sick and infirm resulted in a wide diffusion of hospitals throughout the Christian world, but the decay of many such orders led to the slow extinction of many in the fifteenth century.]

In the eighteenth century we find (Mr. Thomas said) suddenly and quickly coming into being, the voluntary charities, which have continued ever since—established on a new basis and for a definite object, built by voluntary gifts, maintained by voluntary subscriptions, managed by volunteers, and the treatment undertaken voluntarily by the medical profession. Between the years 1719 and 1797 there were five hospitals founded in London, 21 in the provincial towns, and six in Scotland.

London: Westminster, 1719; Guy's, 1725; St. George's, 1733; London, 1740; Middlesex, 1745. Provinces: York, 1710; Salisbury, 1716; Cambridge, 1719; Bristol, 1735; Northampton, 1743; Exeter, 1745; Liverpool, 1745–9; Worcester, 1745; Newcastle, 1751; Manchester, 1753; Chester, 1755; Leeds, 1767; Stafford, 1769; Oxford, 1770; Leicester, 1771; Norwich, 1771; Birmingham, 1778; Sea Bathing Hospital for Scrofula at Margate, 1791. Scotland: Edinburgh Royal Infirmary, 1729, 1736; Aberdeen, 1739; Dumfries, 1775; Montrose, 1780; Glasgow, 1794, Dundee, 1795.

Genesis of the Hospital Problem.

Mr. Thomas sketched the movements, educational and philanthropic, which led to every important provincial town vying with its neighbour in providing a hospital. The development of the mechanical arts and machinery then gave rise to a huge manufacturing class, with a large industrial population as workers, and later with the introduction of steam as a motive power, and railways, created a rapid urbanisation of the population, and by the year of the Great Exhibition (1851) one-half of the population of these islands had become aggregated in towns, by 1911 three-fourths. There was no organised attempt to deal with the hospital problem. As the population increased it was left to any one person, or group of individuals, to establish more hospitals as the spirit of humanity, untempered by financial acuity, prompted, and I am sorry to state that the medical man was most frequently the motive force—being nearer the sick and poor person, he allowed his zeal to outrun discretion. Many doctors devoted some hours per week for free consultations and treatment of the poor, either at their own houses or at rooms taken for the purpose. They served the double purpose of helping the poor and extending their own experience; these free clinics, small at their inception when they became uncomfortably large, resulted in the calling in the aid of charitably-disposed friends to assist; and thus were founded the numerous general and special hospitals met with to-day in all large towns. In Liverpool I have traced the foundation of all hospitals, with the possible exception of the Royal Infirmary, to the members of the medical profession.

[After setting out the immense development of surgery in the importance and magnitude of its operations, Mr. Thomas went on:—]

More and More Work for the Hospitals.

But Parliament has been busy legislating, and incidentally throwing more and more work on the shoulders of the voluntary hospitals for over 30 years, without assisting them in any way, if we except the half-million pounds recently allotted following Lord Cave's Commission, which is serving as a sop to keep them out of the Bankruptcy Court. The Employers' Liability Act, and the Workmen's Compensation Act threw a large volume of work on to the voluntary hospitals. The employment of a workman depended on his being whole or sound, or being made so, if possible, by operation, and all accidents were expected to be treated by the charities. Employers, being business men, contracted with insurance companies to undertake their liabilities; which companies, counting on the humanity of the hospitals to treat patients without cost for maintenance or medical treatment, were able to offer low premiums, whereas, were an injured workman to be taken to his own home they would have to consider many items of maintenance and medical and surgical treatment; they were thus relieved from paying funds to hospitals and fees to doctors in estimating bills of costs. Since 1897, the date of the Acts, I have no knowledge of large donations

from insurance companies out of their high dividends and reserves.

The Education Act of 1907 created the salaried school medical officer to examine all children in elementary schools for defects and illness, and very efficiently they perform their work, but, unfortunately, the powers conferred on education authorities to deal with *treatment* were only *optional*, and the great majority have not availed themselves of these powers—thus throwing more work on the hospitals. The recent Education Act, in abeyance for the nonce, extends the examinations to secondary schools, and the age to 18.

National Health Insurance and the Hospitals.

Last of all, the National Health Insurance Act of 1911 through a levy on employer, employee, and a State contribution confers weekly sickness benefit, treatment for tuberculosis, and maternity benefit plus home or surgery attendance by a panel doctor to more than one-third of the whole population, but contains no provision for nursing, surgery, hospital maintenance, special treatment or medical aid, other than ordinary household attendance, and very minor surgery, thus throwing the really onerous work on the voluntary hospitals for free maintenance and free medical, surgical, and special treatment, and it is the steadily increasing pressure of this last weight that is breaking the camel's back. In 1920, with an estimated population of 37,609,600, according to the Ministry of Health annual report for that year for England and Wales, there were 13,873,000 insured persons, 36·8 per cent. of the total population, of whom 60 per cent. received medical treatment under the panel system, equal to one-fifth of the population. Certain conscience-stricken "approved societies" intend giving £250,000 this year—only to pay a small portion of the cost of maintenance of patients in hospital, yet nine of them exclude members resident in Wales. Taking the number of insured as probably 14,000,000 in 1922, this sum will only represent 4¼*d.* per insured person per annum. The large contributions thrown on the employers by the Insurance Act materially militate against expecting large donations to hospitals, some actually imagining the hospitals are being paid, and others frankly asking why hospitals do this work for nothing.

Change of Type in Hospital Patients.

Having been connected with the Royal Infirmary since 1886 and on the honorary surgical staff since 1892, 34 years, the change in the type of patient and the desire for admission are most noticeable. The really "necessitous poor" have very materially diminished, and their place has been taken by the artisan, clerk, and small shopkeeper, who can by no means be called "lame and sick poor." The better classes are realising that it is almost impossible to equip private surgical homes on so efficient a scale as a hospital that has been kept up to date with its special departments—to mention only one, the X ray department, with its costly machinery, frequently replaced owing to rapid advances in that branch of science—and are asking is it right that they are unable to avail themselves of these advantages, for which they are prepared to pay; and I am convinced that the members of the industrial population would rather feel that some financial arrangement were made by some form of definite contribution which would guarantee payment for services rendered and not expected as a charity. They have a distinct grievance against Parliament, which exacts a weekly contribution from them under the National Health Insurance Act, and yet throws them on to charity in their great need. It may be some time before we approach the American system—but it appears to me that we must travel along their lines soon. There, no person is entitled to occupy a free bed unless, or until, he can prove beyond dispute that he is unable to pay something for the treatment he receives in a hospital ward. They do not consider it the business of the hospital managers to exert themselves to ascertain the circumstances of each patient, because every applicant for relief is bound to present his own credentials, clearly defining to what extent, if at all, he is able to pay for the relief he receives. In American hospitals it will be found that the majority of patients occupy pay beds or paying wards. There being relatively little free medical relief, the American has been educated to feel that no member of the community is entitled to free medical relief, unless or until he becomes so impoverished as to render it altogether impossible for him to pay anything for it—on behalf of himself or any member of his family.

American and English Systems.

Now, the English practice is the exact contrary; it has become the custom to consider it a part of the duties of the hospital authorities to inquire into the circumstances of the patient, instead of insisting upon each patient providing his credentials. Free relief is now so general in this country that the majority of the population consider it not only not a disgrace, but the most natural thing in the world, when they fall ill to demand and to receive free medical treatment without question or delay. Have we not as committees and doctors been responsible for this—watching our statistics and endeavouring to increase our numbers of patients in order to obtain larger proportions of certain funds? In 1890, as the result of a special inquiry, it was found that one-third of the population of Birmingham—apart from the pauper class—altogether received gratuitous medical treatment in the course of each year.

The development of surgical knowledge enables us to do more and more for conditions which only a few years ago were considered beyond our scope, and there is every prospect of further developments. The diffusion of this knowledge to the public creates a steadily increasing demand for surgical aid, and if this had to be rendered gratis in hospital, the amount of time and energy that must be exacted from surgeons will leave only a small amount of time, and a very small percentage of the population willing and able to ask for, and incidentally to remunerate him in order that he may have the wherewithal to obtain sustenance to enable him to live and provide sufficient energy to carry on his gratuitous work. The medical profession can be relied upon to do the just thing, and the public will eventually realise that it is not possible for hospital managers to provide free maintenance for the afflicted for over one-third of the population, nor equitable that the medical profession should have so large a burden of gratuitous service thrown upon it.

DOUBTS WERE AROUSED.

AT Blackwood recently Andrew S. Ahmedeall was fined £20, with the alternative of seven weeks' imprisonment, for falsely using titles implying registration. He had been charged, it appeared, in March last elsewhere and fined a like amount with an alternative of imprisonment, which he had undergone. In endeavouring to practise in Wales, he had taken premises and put up a board which described him as physician and surgeon, and as such he tried to get on the panel for a local colliery company. On being told that he should make a written application, he sent a letter to the secretary of the colliery which he hoped might "fine you all in the best of health," and went on to say, "I am a medical praction and well qualified of the University College of London, and I am all so serves in the British Army as a medical officer." His request for employment concluded with the phrase, "Getlemen, I ask you all please a favour by permit me a space on your valuable ballet sharts." The authorities of the colliery company had their doubts aroused. The matter was reported to the General Medical Council, and proceedings were duly taken by the Medical Defence Union. The magistrates refused the defendant's request for a "recommendation for deportation," saying that they had no power to make one.

THE ORGANISATION OF KNOWLEDGE.

IN an article entitled "The Organisation of Knowledge,"[1] Mr. Frederick L. Hoffman, of the Prudential Insurance Company of America, advocates the claims of science in its best and broadest sense as the solution of the problems of everyday life, both individual and national. His remark that "a League of Nations not based upon completely organised and unified knowledge is as foredoomed to failure as a merchant adventure in ignorance of the market to which it applies" reminds us a little of the cynical idealist who said that the only qualification requisite for membership of the House of Commons was a degree in biology. Mr. Hoffman holds that properly-organised knowledge on the multitude of matters that concern the State and society would within a single generation do more to advance the cause of true civilisation, of science, and of human progress than any other discovery within the realms of possibility. He urges in an able dissertation the need for the constant gathering of facts and their organisation and classification. He claims the superiority of the inductive over the deductive mode of reasoning, but he does not forget the place of imagination and independence of thought in the scientists' mental equipment. He scorns the mathematical mind, and quotes with relish Sir William Hamilton's words: "If we consult reason, experience, and the common testimony of ancient and modern times, none of our intellectual studies tend to cultivate a smaller number of faculties in a more partial or feeble manner than mathematics." His censure of the narrow-minded attitude too frequently displayed by authorities towards pioneer work outside the recognised field of academic science is not altogether unjust, though possibly this attitude is less prevalent than he imagines. Mr. Hoffman's connexion with insurance work lends piquancy to the remark, "The aim of organised knowledge is to increase the certainty of prediction."

[1] Prudential Insurance Company of America, Newark, N.J. Science, vol. lv., Nos. 1419-20, March 10th to 17th, 1922.

NEW CLUB FOR NURSES.

ON June 22nd the Cowdray Club will open its doors to members. A sum of about £100,000 has been spent in acquiring, adapting, enlarging, and furnishing the premises. In the new dining-hall, which can seat 150 persons, luncheons will be served at 1*s.*, 2*s.*, or à la carte; dinners at 2*s.*, 4*s.*, or à la carte; teas at 6*d.* or 1*s.*, and breakfasts at 1*s.* to 2*s.* Bedrooms, including bath, light, and attendance, will be 5*s.* a night, and non-resident members may have the use of a dressing-room, including bath, at 2*s.* an hour, or a bath for 9*d.*

Those eligible for membership are nurses and other professional women, and a limited number of other women, at the following rates:—

	Town.			Country.			Overseas.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
Members of the College of Nursing	1	5	0	0	15	0	0	7	6
Other nurses and professional women	2	10	0	1	10	0	0	15	0
Other persons	5	0	0	2	10	0	1	5	0

It will be remembered that the club owes its existence to the munificence of Lord and Lady Cowdray and was primarily designed for the comfort of nurses, but the residential and other facilities it offers will doubtless be appreciated by other professional women, especially perhaps by medical women who practise in the country. Application forms will be sent on written request made to the secretary of the Club, at 20, Cavendish-square, London, W. 1.

STAMMERING—WHAT IS IT?

To the Editor of THE LANCET.

SIR,—Mr. H. St. John Rumsey, in his article in your issue of May 13th, can hardly be said to have given a satisfactory answer to the above question. He tells us that "it is a careless habit" which, if not corrected, becomes "a nervous habit," and that "in three cases out of four it is due to lack of coördination between the vocal and articulatory mechanisms."

How, then, does he explain the fact that in the majority of cases stammering develops after a nervous shock or after an illness, prior to which there has been no sign of it, and frequently no other stammering in the family? In 30 years of treating stammering I have found it exceptional to come across a case where it did not develop as above stated. Here are two typical cases. A boy of 10½ had never stammered; there was no stammering in the family. It developed after concussion of the brain following a fall out of a window. A girl of 7 developed it after acute colitis. In my experience it is caused in the majority of cases by nervous shock of some kind. For instance, I have had a large number of cases in whom it developed after air raids, where there had previously been no sign of it. The cases that are not psychic in origin are rare, and these are probably quite amenable to early correction and elocutionary treatment such as Mr. Rumsey indicates.

His theory that stammering is "due to lack of coördination between the vocal and articulatory mechanisms" also applies only to a limited proportion of cases. In the majority it is due to lack of coördination between the *respiratory* and the vocal and articulatory mechanisms; or, to put it more accurately, it is due to spasm of the diaphragm, *caused by nervousness;* the difficulties of phonation and articulation are purely reflex, and generally the less attention paid to these phenomena the better. This view, on which my father, the late Emil Behnke, based the method which met with the approval of the medical profession, was shown to be correct by the investigations which I assisted my mother, the late Mrs. Emil Behnke, in carrying out by means of the X rays. We examined large numbers of stammerers, and found diaphragmatic spasm to be the cause of stammering, the spasm being clearly visible on the screen. This was also corroborated by the tracings of the pneumograph, which Dr. R. A. Worthington kindly placed at my mother's disposal for the purpose of registering diaphragmatic spasm as the causation of stammering. The instrument recorded the irregularities and stoppages of the respiratory mechanism, giving a diagrammatic picture of the checks and stops of voice caused by the respiratory irregularities in a stammerer.

Here we have, of course, the explanation of the intermittent stammer that so often lays the young stammerer open to the accusation of carelessness: under the influence of nervousness or excitement the diaphragm acts spasmodically and control of breath is upset, with the derangement of phonation and articulation that we are familiar with. Treatment in this type of case which attends only to the elocutionary aspect and ignores the nervous factor will not give satisfactory results.

I am, Sir, yours faithfully,

KATE EMIL BEHNKE.

39, Earl's Court-square, S.W.5, May 27th, 1922.

BRITISH FINE CHEMICALS.

WE have received from Mr. W. Martindale, manufacturing chemist, of 10, New Cavendish-street, London, W., a price list of the special preparations prepared and stocked by his firm. The small book contains also many therapeutic suggestions which will be of considerable assistance to the practitioner. The prices given are professional prices, and represent special rates accorded to the medical man, to whom also Mr. Martindale's research laboratory is open.

A note in the preface gives reasons for an earnest appeal to the medical profession to support the British chemical and pharmaceutical industry, and we can quite understand that recent trade depressions have made foreign competition very serious. There is a point here that might be remembered, for it was brought to the notice of our readers not long ago in a letter signed by a representative group of those engaged in the fine chemical industry. The letter pointed out that at great cost plant was erected during the war which enabled very remarkable achievements in the sphere of fine chemicals to be accomplished and that all this plant can now be put to peaceful purposes. To make use of such equipment to enter into competition with foreign manufacturers is clearly the policy of British pharmaceutical chemists, who probably expect only a modicum of protection, though this, we believe, it is their intention to seek.

TREATMENT OF SCARLET FEVER AT HOME.

Mr. A. E. Jones, writing from an address in Tottenham, sends some interesting comments on the result to himself of the adoption of the treatment of scarlet fever at home by his borough. The method was swabbing the throat with carbolic oil and anointing the body with eucalyptus oil, and is well known to have strong medical support, so that many believe infection to cease from the time that the treatment is applied. But differences of opinion between authorities and members of the public on the subject may lead to the inconveniences which Mr. Jones details.

A member of his family, living away and following employment, arrived home 24 hours after the first application of the treatment to a patient in his house by the nurse supplied by the Tottenham urban district council. The visitor's employment was suspended by his employers despite the official assurances that there was no further risk of infection, and 22 days later he was in one of the Metropolitan Asylums Board's hospitals suffering with scarlet fever. Mr. Jones adds that this person was only allowed home on the strength of the assurances that there was no risk. Further, one of the children in the house was suspended from school. In the meantime, and on the tenth day of the patient's illness, the treatment by the nurse ceased, and the case remains in bed, while the medical officer of health awaits instructions from the Ministry of Health.

E. S. G.—(1) The average case of syphilis whose treatment starts in the secondary period will probably require three courses of eight injections each, which amount to about 15 g. of novarsenobillon. This course will probably have been spread over a year, and will have been supplemented by mercurial treatment and pot. iod. During the second year of treatment the patient will certainly be under mercury, and may yet receive further arsenical treatment. (2) No method of administration is likely to cut short the minimum period of two years during which a patient with secondary syphilis is under treatment. Some cases certainly do better and attain a negative W.R. more rapidly under intramuscular than intravenous injections of neosalvarsan, but it is doubtful whether the total period of treatment is much affected. (3) There is nothing in the technique of intravenous or other injections that a well-equipped general practitioner cannot master. Experience and special skill are required in deciding the amount of treatment and avoiding accidents in intolerant cases.

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